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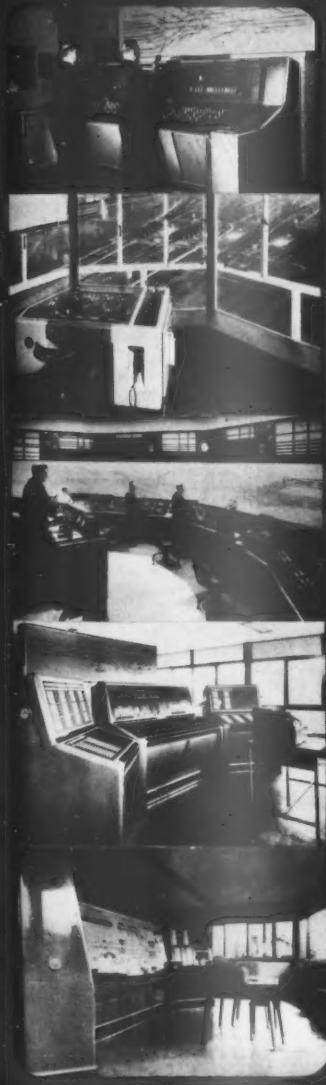
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Publication Resumed

THE present is the first full-size issue containing the usual features to be published for more than two months, because of the dispute in the printing industry. An apology is due to our readers for the curtailed issues of June 5, 12, and 19, and for late delivery. This was followed by some weeks during which we could not appear at all. Every attempt will be made in this and succeeding issues to deal adequately with the more important railway events which have occurred and the questions arising. The deficiencies and delays, and later failure to appear, were caused by circumstances beyond our control. That cannot lessen the inconvenience and disappointment caused to many who expect to be kept informed of events on railways throughout the world. We shall credit subscribers for the issues which they did not receive, and this adjustment will be made when subscriptions are being renewed. It has been necessary to postpone publication, for reasons of space, of articles describing, amongst other things, new motive power and rolling stock for railways in this country and abroad, the repair, maintenance, and testing of diesel locomotives and railcars in some British Railways shops, new methods of handling traffic, developments in signalling, construction of new lines, bridges and other civil engineering works on railways at home and abroad, a new track recording coach for

British Railways, and of items in our personal columns. For the same reason, and also because of the lapse of time, it is felt that only brief mention can be made of some rather less important topical events, to which greater coverage would have been given at the time they occurred. A commentary on major developments of the past few weeks is given on another page.

Diesel Power for British Railways

INCLUDED in a number of contracts for locomotives and power equipments announced at the end of June by the British Transport Commission is an order for 45 1,700-h.p. BB diesel-hydraulic main-line locomotives to be supplied by Beyer Peacock (Hymek) Limited for British Railways, Western Region. These are the first diesel-hydraulic locomotives in the 1,500-1,750-h.p. range (Type "3") to be ordered for British Railways. Bristol Siddeley Maybach quick-running diesel engines will drive through Stone Mekydro hydraulic transmission equipment which is designed to ensure equal efficiency when hauling heavy trains at low speeds or fast passenger express trains. The design and construction of these locomotives will be undertaken by Beyer Peacock & Co., Ltd., at its Manchester works. Although the order is the first to be placed by British Railways with Beyer Peacock (Hymek) Limited, all the companies of this group individually have supplied major equipment contributing to the railway modernisation programme. Also, 12 Type "3" diesel-electric locomotives of 1,550 h.p. for working on the London-Hastings via Tunbridge Wells line of the Southern Region, have been ordered from the Birmingham Railway Carriage & Wagon Co. Ltd. They will have Sulzer engines and Crompton Parkinson electrical equipment.

Electric Locomotives and Equipment for Poland

THE contract negotiated between British Insulated Callender's Construction Co. Ltd., the English Electric Co. Ltd., and Metropolitan Vickers Electrical Co. Ltd., on the one hand, and the Polish Government agency Elektrim on the other, for 20 electric locomotives and overhead line equipment, details of which are given in our Contracts and Tenders columns, continues the association enjoyed by British manufacturers with the Polish State Railways before the war. Two of the British firms, English Electric and Metropolitan Vickers, first collaborated in 1933 on a contract for the complete electrification of some 130 miles of suburban railways radiating from Warsaw. This was brought to a successful conclusion before the outbreak of hostilities in September, 1939. After the war a further contract was entered into jointly for about £1,500,000 covering the supply of electrical equipment for the rehabilitation of the Warsaw suburban lines and for an electrification scheme in the North of Poland. The 1956-60 Five-Year Plan provides for *inter alia* 222 electric locomotives, 264 three-car and eight long-distance four-car multiple-unit electric sets, 750 diesel locomotives, 310 diesel railcars, 2,000 passenger coaches, and 40,000 goods vehicles. It is gratifying to note that British manufacturers are taking an active part in the implementation of this plan.

Faster to Bristol

THE completion of the inaugural trip on the 100-min. schedule of the Western Region "Bristolian" on June 15 from Paddington to Bristol Temple Meads via Bath, 118.3 miles, in just over 93 min., despite slacks, shows that the timings of 100 min. both ways are well within the capacity of Type "4" 2,200-h.p. Swindon-built diesel-hydraulic locomotives. The up journey is via Badminton, 117.6 miles. The stock of the 350-ton train of eight bogies was clean and well appointed, and the riding good. The locomotive on the inaugural run was "Warship" class No. D.805, *Benbow*. The next step in improving the London-Bristol service is the introduction of the multiple-unit Pullman diesel trains offering an exceptionally high standard of comfort being built by the Metropolitan-Cammell Carriage & Wagon Co. Ltd., which will set a new standard in comfort and, no doubt, in speed. The journey times already are reasonable. What is essential is sustained punctuality. Even with a reserve of motive power this is hard to maintain with improvement works in progress and dense traffic on many sections.

Progress at Peterborough

THE new goods depot at Peterborough, opened on July 13, by Lady Benstead, wife of Sir John Benstead, Deputy Chairman, British Transport Commission, marks another step in the modernisation programme of the Great Northern Line of British Railways, Eastern Region. The scheme is the first stage of a long-term comprehensive plan for the modernisation of Peterborough North, which will embrace the reconstruction of the passenger station and its rail approaches. The carefully planned layout, which includes a new road motor depot, will do much to speed the handling of traffic to and from this large industrial area. The importance of the depot to the local community was shown by the large number of traders which attended the opening ceremony. Rebuilding of the passenger station and alteration of the track layout, will result in abolition of the present traffic bottleneck and severe speed restriction on the East Coast main line, besides affording better service to an important commercial centre.

Diesel Traction Progress in the Eastern Region

IN a little over a year, British Railways, Eastern Region, has built up its fleet of main-line diesel-electric locomotives from practically none to more than 100, towards the target of 400 expected to be in service by 1961. The locomotives now in operation comprise Types "1," "2" and "4," ranging from 800 to 2,000 h.p. Their introduction has made possible widespread improvements in services throughout the Region. The first diesel-hauled all-Pullman trains in Britain, introduced in September, 1958, give the fastest service so far provided between Sheffield and London, where the "Master Cutler," hauled by an English Electric 2,000-h.p. locomotive covers the 161 miles in 165 min. With the summer timetable on June 15 was introduced an all-diesel service between Kings Cross, Hertford North, Hatfield, Welwyn Garden City, Hitchin, and Royston. The new timetable introduced last January on the Great Eastern Line gives fast, regular-interval services between Liverpool Street, Chelmsford, Colchester, Clacton, Yarmouth, Lowestoft, and Norwich, with eight expresses a day covering the 115 miles between London and Norwich in 2 hr., hauled by 2,000 h.p. English Electric diesel-electric locomotives. The improvements have been retained in the current timetable.

Goods Trains Accelerated

GOODS services also have benefited from diesel-electric traction in the Eastern Region. For example, goods trains between the new Temple Mills and the Whitemoor marshalling yards have been accelerated by 90 min. over the 100-odd miles, and most of them now run at express freight train speed. Diesel-electric locomotives now also work through on freight trains between Ripple Lane near Barking, on the Tilbury Line, and Whitemoor yards. On the Great Eastern Line, 22 diesel-electric locomotives are at present allocated to goods train duties and handle about 14 per cent of the total freight train traffic on that line. Next year, English Electric Deltic 3,300-h.p. locomotives, the most powerful single-unit diesel-electric locomotives in the world, will be hauling expresses on the East Coast Main Line between Kings Cross and Scotland. The Eastern Region diesel programme is aimed to improve services on principal main lines pending full electrification. Where electrification of the line is not planned, diesel units are taking their place as permanent successors to steam. Steam working in and out of Liverpool Street is to be eliminated by 1961.

The Fishguard-Waterford Passenger Service

IN VIEW of the high cost of operating packet steamers, especially when there is no constant high level of traffic, the withdrawal on June 29 of the British Railways, Western Region, direct passenger service between Fishguard and Waterford was not unexpected. The ss. *Great Western*, which had been operating this service, continues to run for conveyance of cargo and livestock only. The facilities for passengers and accompanied motorcars between Fishguard and Rosslare Harbour, with the well-appointed vessels and good port facilities, are available for travel to and from Southern Ireland, and passengers by this route may, if desired, have their cars

conveyed direct to and from Waterford at accompanied motor-car rates. The Fishguard-Waterford service originated in that between New Milford (now called Neyland) and Waterford which was worked from 1856 to 1872 by Captain Jackson, of Milford. The Great Western Railway took over the service, with the four vessels operating it, in 1872, and soon afterwards placed better ships on the run. On August 30, 1906, when Fishguard Harbour and approach lines were brought into full use, and the Rosslare service was inaugurated, the G.W.R. Waterford steamers and the City of Cork Steam Packet Co. Ltd. steamers to and from Cork were transferred to Fishguard.

B.T.C. Chairman on closed circuit TV.

SIR BRIAN ROBERTSON, Chairman of the British Transport Commission, recently used closed-circuit television to talk to over 800 members of the Commission's headquarters' staff. He explained points from the recent re-appraisal of the railway modernisation plan, and was watched by the staff on television screens in four separate viewing rooms. The "broadcast" was an experiment decided on because there was no room large enough to accommodate all the headquarters' staff. It was part of a new effort to bring more of the staff into closer contact with management, and was well received as an important step in this direction. It is believed that this is the first occasion in this country that television has been used in this way. A film record of the Chairman's televised talk was made by the Commission's Films Division, and this will be shown to the staff of the Commission's undertakings throughout the country.

New Zealand Railway Losses Reduced

THE deficit on the New Zealand Railways Department operations during the year ended March 31, 1958, was £764,000 instead of an estimated £3 million, according to a statement by the Minister of Railways, Mr. M. Moohan. The deficit was 33 per cent less than that of £1,145,000 for the preceding 12 months. This satisfactory result was achieved despite salary and wage increases amounting to more than £250,000, higher electricity charges, and without any increase in passenger or freight charges. The Minister stressed that this could not have been done without the full co-operation of the staff and the representatives of the four railwaymen's organisations. The New Zealand Government Railways are continuing to take active steps to improve their services, notably in reducing journey times by introducing diesel locomotives and by placing in service new types of wagon, including refrigerator and timber wagons. Diesel working, moreover, has helped to reduce working expenses. Extension of electrification is under consideration. Road competition, however, is acute, and the total population of the Dominion is only some 2½ million, and sparse in large areas. The 3-ft. 6-in. gauge restricts the loading gauge and running speeds. The utmost effort and skill will be needed on the part of all concerned to enable the N.Z.G.R. to carry its proper share of traffic.

Signalling and Interlocking in India

UNDER the Indian Railways Second Five Year Plan Rs.1,616 crores (£12,450,000) was allocated to signalling works. The works involved include the interlocking of 350 non-interlocked stations; improvement of interlocking at 450 stations; provision of 1,000 token block instruments; equipment of 200 double-line sections with lock and block; installation of 80 single-line sections with clock instruments; control of 40 route-miles of double line with automatic signalling; improvement of over 1,000 non-interlocked stations with a rudimentary form of interlocking; provision of over 500 level crossings and catch-sidings with interlocking; equipment of 50 stations with track-circuiting; and provision of a few selected stations with route-relay interlocking. Moreover, Rs.1.4 crores (£1,050,000) is allocated for the expansion of existing signal workshops, and the movement of others as well as the provision of new shops on two railways. Additionally, Rs.2 crores (£1,500,000) are being spent on telecommunications and a further Rs.14 crores (£10,400,000) are involved in the signalling and interlocking of various line-capacity works such as doubling, additional crossing stations, junction remodelling, and marshalling yard improvements.

The Weeks Between

THE unusually large number of matters of public interest which have been claiming attention since we published our last issue on June 19 include several of outstanding importance in the world of transport. Chief of these are the issue of the White Paper containing the re-appraisal of the modernisation and re-equipment plan for British Railways, and that of the British Transport Commission report for 1958. Developments in the industrial field, the acceptance by the Transport Tribunal of the B.T.C. Passenger Charges Scheme and the Commission's traffic receipts for sixth four-week period of the year, are the subject of editorial comment on other pages this week. Pressure on our space does not allow of a résumé in detail of the appraisal of the modernisation plan or of the Commission's report. It is planned to give these in a future issue. Other major events are the subject of editorial notes. They include some important contracts for British Railways and appointments in the world of transport.

A busy holiday traffic season for British Railways is accompanied by some increase in mineral traffics, the result of a revival in some sections of industry, and in merchandise traffic. The latter may be due in part to the improved service now given and to the co-ordination of commercial and operating activities afforded by the traffic managements in the Regions. Nevertheless the analysis published recently by the Ministry of Transport & Civil Aviation of a sample survey conducted in April, 1958, of road traffic in Great Britain, shows the extent to which traffic had been lost by rail to road. The estimates of the annual volume of road transport in 1958, based on the sample week together with the result of continuous counts of traffic now taken at 50 points on the country's road system, show that 76 per cent of domestic goods transported by weight, and 45 per cent measured in ton-miles, went by road. The figures for rail were 19 and 35 per cent respectively; 20 per cent of goods, measured in ton-miles, went by coastwise shipping. A comparison of road and rail traffic alone shows that while the total volume of traffic in ton-miles was only 0.5 per cent greater in 1958 than in 1952, according to the samples, road bore only 46 per cent in 1952 but 56 per cent in 1958.

Reports indicate that both passenger and goods traffics are satisfactory on railways in Western and Central Europe. Some of these, the Swiss Federal in particular, are enjoying prosperity. The Spanish National Railways are to increase passenger charges by 40 per cent from October 10, and goods tariffs were augmented from last week; the effect of these increases to some extent will be offset by the recent devaluation of the peseta, at least as regards the valuable foreign tourist traffic. In the U.S.A., the railways have been badly affected by the strike in the steel industry. The recent political upheaval in Argentina has resulted in replacement of the former military officers in the headquarters of the nationalised railways, by experienced railwaymen. The newly-appointed Chairman of the Indian Railway Board, Mr. K. B. Mathur, who recently visited Britain, has reported active progress on electrification, building of new lines, notably to facilitate the movement of steel and coal in the industrial regions of Bengal and Bihar, construction of marshalling yards, and other steps to improve the operation and increase capacity of the Indian railways. Further action is being taken to achieve self-sufficiency in equipment and rolling stock, more particularly in the building of electric and diesel motive power.

The County Donegal Joint Committee has applied to the Governments of Northern Ireland and the Republic for permission to close its 3 ft. gauge system. Two-car diesel trains and railbuses replaced Scottish Region steam trains on services around Hamilton from July 6, and some Glasgow suburban services are now operated with diesel sets.

The last of five diesel railbuses built for the British Transport Commission by D. Wickham & Co. Ltd., which recently completed its trials, is fitted with André-Westinghouse pneumatic suspension in place of conventional laminated springs.

Parcels traffic handled at four Glasgow termini, Buchanan Street, Queen Street, Central, and St. Enoch, has been concentrated in a single depot, the former Eglinton Street goods station. A combined road delivery fleet now handles the eight million or so packages handled annually by three fleets operated from the four passenger stations. The Southern Region has put nine

two-way radio-equipped vans into service in an area of south-west London.

The Polish State Railways have ordered 20 electric locomotives from a consortium of B.I.C.C., English Electric, and Metropolitan-Vickers. Further locomotives are to be built under licence in Poland.

Re-appraisal of Modernisation Plan

THE main features of the report by the British Transport Commission to Mr. Harold Watkinson, Minister of Transport & Civil Aviation on the plan for modernisation and re-equipment of British Railways, as re-appraised and issued as a White Paper debated and accepted by the House of Commons recently, are the concentration of effort on major works which can be completed quickly so as to make possible improvements in service; closing many lines and stations which cannot pay their way; better use of plant and manpower; and considerable optimism as to the ability of the Commission to achieve a working surplus, as to which some Members showed themselves sceptical during the debate. Despite the adverse financial position of the Commission, there is no drastic cut in the plan.

The Commission has not asked specifically for its large accumulated deficit, now at about £270 million, to be written off, but in the White Paper it is stated that "if the Commission is to be put in a position to pursue consistent policies on a long-term basis, it seems essential that in due course its financial structure should receive consideration afresh." Writing off the deficit would be to grant a subsidy to the Commission, with the consequent absence of a spur to efficiency and slackening of financial discipline which a subsidy implies. One may bear in mind the need, stressed by Mr. Donald Gordon, Chairman & President of the Canadian National Railways, for a State railway undertaking to work under strict financial discipline.

The main provisions of the original plan are defended. The report points out that not all the assumptions which were made, and necessarily made in the plan, have been borne out subsequently. Among the adverse factors it mentions are continuing, though slower, inflation, combined with slowness in getting higher charges through the Transport Tribunal, stagnation in industrial production, and the fall in the consumption of coal and the production of steel. It has been and will be necessary to make adjustments to the modernisation plan, but the Commission remains satisfied that it is a sound investment. The conclusion reached is that the changes needed are principally in the direction of accelerating implementation. Any slackening in the pace would delay the improvements on which future revenues depend. Heavy deficits, loss of morale among the staff, and loss of public confidence would be inevitable. At the same time, the work of rationalisation, which involves some reduction of service, is to be speeded up. The hardship through reduction of staff, which this year may exceed the 23,000 dispensed with in 1958, will continue and perhaps be accelerated, though it will be mitigated. The objective remains "a modern, progressive undertaking, with a smaller staff proud of their industry and better paid."

Savings to be made by these cuts in services between now and 1963 are described as "very substantial." In 1959 the saving will be about £2 million. By 1963 there may be more than 1,000 fewer passenger and goods stations than in 1958, and some 1,800 route-miles may have to be closed unless improvements in traffic justify some retention. At present the Commission does not foresee any closure of main lines before 1963. A few may justify review later, but meanwhile action will be confined to considerable alterations in the service on some lines and the closing of stations and depots.

The Commission believes that it can achieve a working surplus of between £50 million and £100 million by about the end of 1963. Against the working surplus of between £50 million, and £100 million forecast by 1963, and forecast, "subject to the many assumptions necessarily inherent in such a forecast," are set two adverse factors. By 1963 the charge on the Commission's revenue account in respect of central charges, excluding interest on deficit advances, will have risen to about £85 million so that on the most favourable assumption there might be a small net surplus, but otherwise a deficit is expected. Also, under existing legislation, the amounts falling on the revenue account in respect of interest on deficit advances will be £5 million in 1963, rising to about £25 million a year in 1965

and subsequently. While no detailed examination of trends beyond 1963 has been attempted, the prospect is of continuing improvement after 1963, with increasing traffics and falling working expenses. The revenue accounts of the years after 1963 will have to bear the interest held in suspense at the end of that year on capital borrowings, as well as interest on further borrowings after 1963. The improvement to be expected in the working surplus may well be absorbed by this rising interest charge, apart from the burden of interest on, and the repayment of, deficit advances made in respect of the period from 1956."

The plan was criticised in the Commons and elsewhere for its failure to establish an adequate form of accountability. Normal commercial standards, it was argued, had been submerged by the vast deficits and there should be accounting to show the areas and services on which the losses arise. If, as seems likely, even the new estimates of the re-appraisal appear to be too favourable, it would be known where the money is being lost.

The report gives a list of the revised completion dates for electrification scheme. The most important is the acceleration by one or two years of the work on the main line from Euston to Birmingham, Crewe, Liverpool, and Manchester. The concentration on this will mean that conversion of the East Coast main line from Kings Cross will not be begun during 1959-63, though a start will be made on the Eastern Region Great Northern Line suburban services. Part of the Southern Region Kent Coast scheme will be finished in 1961, a year earlier than planned.

Diesel is to replace steam traction on the East Coast main line, and, by the end of 1961 on the Western Region lines in the West of England. By 1962 it is expected that diesel locomotives will be working the lines from St. Pancras to Leeds and Manchester, and from Leeds to Bristol. By 1963 the North-Eastern Region will have about 350 diesel locomotives in operation, and by the same year a large part of Scotland will be working on diesels. Diesel traction is also being used to tide other main lines over until they are electrified.

By the end of 1963, more than four thousand multiple-unit diesel trains will be in service, compared with 2,400 at the end of 1958, and the fleet will be almost complete. The report states that diesel and electric traction will be transforming passenger services on the main lines by the end of 1963. There will be a faster and more frequent service than now, with main-line trains at regular intervals, and improved and more frequent cross-country services.

Commenting on the acceleration of improvements to signalling, Sir Brian Robertson, Chairman of the Commission, has announced that because of the shortage of signal engineers on British Railways, the New York Central and Netherlands Railways are to lend the services of some of their staff. This is not intended as a reflection on the British suppliers of signal equipment to the railways, or on the design of equipment, but only as a measure to alleviate a shortage of manpower in certain grades. Nevertheless action of this kind at the present time is likely to have repercussions which may not have been appreciated when the plans were made.

Eleventh Year of State Transport

THE British Transport Commission deficit for 1958 as shown in the report for that year is £89 million after charging against revenue £61 million for central charges. This is disquieting. The deficit may not seem great in relation to a turnover of £700 million, but it is largely the result of considerably reduced revenue from British Railways, on which the working deficit was £48 million. Of the £61 million ascribed to central charges, some £59 million was for the service of Transport Stock and other borrowings. There was a working deficit of £20 million on activities of the Commission other than British Railways.

That the British Railways working deficit was £21 million greater than in 1957 is due in the main to a decline in coal movements and in the activity of the heavy industries. The working surplus from other activities was £3.5 million less than in 1957, mainly because of the losses during and after the London bus strike. So far as it is possible to analyse the deficit, it might be said that some £55 million of it could have been expected as part of the process of deficit financing. The

report recalls that when, last autumn, it became inevitable that the deficit would substantially exceed earlier expectations, the Commission set out the position in a letter to Mr. Harold Watkinson, Minister of Transport & Civil Aviation, which was subsequently issued in a White Paper (Cmd. 585). The Government, sharing the Commission's confidence in the ultimate ability of the undertaking to pay its way, introduced the Transport (Borrowing Powers) Bill which provided for an increase in the limit of deficit borrowings from £250 million to £400 million. The amount which could be borrowed under this Act by the end of 1958 was £207 million, of which £184 million had been taken.

Railway freight receipts were £30 million less than in 1957. Compared with expectations at the beginning of the year, which took into account the increase in charges of August, 1957, the shortfall was even greater. Among the increases in working expenditure, staff costs rose through increases in wages and in national insurance contributions, and depreciation charges reflected the substantially higher prices at which rolling stock and other assets were being replaced. The main contribution towards meeting higher wage rates and price levels and falling traffics came from reductions in working expenses. British Railways achieved reductions in expenses of £9 million compared with 1957, despite wage and price increases costing about £13 million.

Apart from the financial factor, the year was remarkable for the volume of physical modernisation and development, especially on British Railways. The report deals with these clearly and succinctly, and they are illustrated with well-chosen photographs. Passenger traffic on British Railways, measured by passenger miles, was the highest since nationalisation except in 1957, when there was an unusual peak because of the petrol shortage arising from the Suez incident. The facilities offered to traders by British Railways and British Road Services, and the more active commercial outlook of the railways, are reported to have attracted favourable comment. There were many notable advances in the Hotels and Catering Services.

Economy measures, accentuated by the decline in some traffics, led to acceleration in the withdrawal of railway branch line services, the problem of the rural bus attracted much attention. On some sections of the railways the advancing age of the equipment, or the dislocations caused by engineering work on modernisation projects, caused much unpunctuality. Inevitably, the report states, the public relations of British Railways and London Transport, and to some extent, their staff relations, were adversely affected by curtailments of services.

Because of rising costs the bus companies individually found it necessary to go to the Traffic Commissioners for fare increases in varying degrees, and the Commission applied to the Transport Tribunal in September for the new Scheme which would permit them to fix fares with greater flexibility on the railways and on London Transport services. The Scheme, after modification, has now been approved. There was no general change in freight charges during year, but many charges were increased or decreased in negotiation with individual traders. Particular emphasis was laid on securing a larger proportion of their custom, on a better balance of traffics, and on other measures which would lead to more economic handling of the traffic. Dock and catering charges had to be increased. While there was a fall in the volume of traffic available for transport, the number of "C"-licence vehicles suitable for carrying goods over medium and long distances continued to rise. Road hauliers, who were very largely dependent on general merchandise traffic offering for public transport, cut their rates to hold it. This was one reason for the serious decline of 13 per cent in British Railways' general merchandise carryings, compared with 1957.

Progress was made in economics in manpower. The report shows that the total number of employees of the Commission and its undertakings at the end of 1958 was 773,911, a reduction of 32,366 during the year. There was a steady shrinkage in employment on British Railways. At the end of the year the total numbers employed were 550,123, a reduction of 4 per cent. On London Transport, mainly as a result of reductions in the bus services, the total staff employed fell by 6.2 per cent. Reference is made to the reorganisation of traffic managements on the basis of closer co-operation between the commercial, operating, and motive power elements, in the Regions as a means of attracting traffic and handling it with

greater efficiency. In those Regions where the new traffic machinery had had time to "bed down," the report states, the results obtained had been encouraging.

By the end of 1958, the number of new main-line diesel locomotives in service had more than quadrupled compared with a year earlier, there being 103 of current design in operation, including several types which had not previously been tried; however, deliveries in 1958 were lower than originally planned. By the end of 1958, 2,835 steam locomotives had been withdrawn for scrapping since January, 1955, against which only 518 new engines were brought into service. The number of diesel shunting locomotives rose to 1,091 by the end of 1958. Besides the main-line diesel locomotives, by the end of the year there were 2,400 diesel railcars in service, almost twice the number operating a year earlier. Nearly 2,000 more of these are planned for the next three years, and will be used to reinforce existing services where these have proved to be sufficiently profitable and to take over sections which are at present still worked by steam.

Rationalisation of the older installations is proceeding concurrently with the development of new ones. Up to the end of 1958, 40 marshalling yards which had been sited by the former railway companies to suit their own flows of traffic, had been shut down and two big modern yards, at Thornton and Temple Mills, had been opened. There was substantial progress with other marshalling yards under construction, and, by the end of 1958, schemes had been prepared for the construction of 27 new yards.

Allowing for 215,000 new wagons brought into service in the last four years alone, the total wagon stock had been reduced to a little over one million at the end of 1958, compared with 1,183,000 in 1948. The mileage of express brake-fitted trains had increased to over 35 per cent of the whole.

Passenger Charges Scheme Authorised

THE confirmation by the Transport Tribunal, on July 8, of the British Transport Commission (Passenger) Charges Scheme, 1958, was to be expected. The draft scheme was submitted on September 1, 1958. It was rejected as drafted in May, because the Tribunal was not satisfied with the Commission's conception of a standard of season ticket charges to give a reasonable flexibility. The Commission submitted revised proposals, which have now been agreed. Details of the scheme as amended and approved, are given elsewhere in this issue.

The scheme is mainly a raising of the headroom to allow fares to be raised when necessary. The Commission does not intend to make full use of its new powers at present. The first increases, with a few exceptions in the London area, will not be put into effect until the end of the holiday season. The fact that the new rates are maxima seems to have been accepted by the public. How far it will be necessary to raise fares to these maxima is problematical. There are psychological objections. Despite the many excursion and mid-week fare facilities, the raising of the ordinary single fares to 4½d. and 3d. a mile, first and second class respectively, might deter some marginal traffic. Some people might claim that it is cheaper to travel by private car than go first class by train at 4½d. a mile. Even if the ordinary fare—at which most people travel on business—were raised, it would exceed the cost of travel by road, taking the overhead costs of the motor car, only in a few cases. In addition, the speed, comfort of the train, and freedom from the strain of driving, must be taken into account.

The railways are competing with other forms of transport for custom. Except where the traveller has virtually no alternative to travel by rail, as for instance in the case of season tickets between residential areas and large cities, it is largely academic to stress the reasonableness of the new fares or authorised maxima by comparison with pre-war charges. Even so, the London travelling public should remember that with the raising of the fare to 7d. the average cost of London Transport fares will be 151 per cent above the pre-war figure, compared with an increase of 173 per cent in the average cost of goods and services. The 6d. fare has remained unchanged since 1954. The third class (as it then was) main-line passenger fare in 1939 was 1.575d. a mile. The problematical 3d. a mile is not great in relation to that, and the present charge of 2d. is remarkably low—though with good management, it can produce profits in well-loaded express trains.

British Transport Commission Traffic Receipts

BRITISH Railways passenger receipts for Period 6, the four weeks ended June 14, were 8.4 per cent below last year's figure, which is again disappointing. Whitsun tide fell in this period both in 1958 and the current year. The strike last year is the reason for the absence of L.T.E. bus receipts during the period. The 3.6 per cent rise in ships' passenger receipts, compared with the corresponding weeks of 1958, is encouraging. In view of reports of reduced country bus traffics, the provincial and Scottish bus undertakings of the British Transport Commission seem at least to have been holding their own in the past few weeks.

	Four weeks to June 14, 1959		Incr. or decr.	Aggregate for 24 weeks		Incr. or decr.
	1959	1958		£000	1959	1958
<i>Passengers—</i>						
British Railways	11,227	12,258	— 1,031	57,506	57,565	— 59
London Transport:						
Railways	1,783	2,280	— 497	10,886	11,530	— 644
Roads	4,336	—	+ 4,336	24,702	19,892	+ 4,810
Provincial & Scottish buses	4,971	4,892	+ 79	25,783	25,644	+ 139
Ships	627	605	+ 22	2,143	2,031	+ 112
Total Passengers	22,944	20,035	+ 2,909	121,020	116,662	+ 4,358
<i>Freight Parcels & Mails:</i>						
British Railways:						
Merchandise & live-stock	7,360	7,644	— 284	44,893	49,610	— 4,717
Minerals	3,252	3,264	— 12	20,172	22,578	— 2,406
Coal & coke	7,782	9,198	— 1,416	54,009	61,661	— 7,652
Parcels, etc., by passenger train	4,059	3,977	+ 82	24,140	23,884	+ 256
Total Freight British Railways	22,453	24,083	— 1,630	143,214	157,733	— 14,519
Others*	4,348	4,182	+ 166	24,785	24,620	+ 165
Total Freight, Parcels & Mails	26,801	28,265	— 1,464	167,999	182,353	— 14,354
Total	49,745	48,300	+ 1,445	289,019	299,015	— 9,996

* Road haulage, ships and inland waterways freight.

The railway freight figures, though poor, are a slight improvement on the previous four-week period. Merchandise and livestock receipts at £7,360,000 were 3.7 per cent below the Period 6 figure for 1958, whereas for the preceding four weeks they were 9.4 per cent below last year's total. Mineral receipts at £3,252,000 almost equalled the total for Period 6 of 1958; for the preceding period they were 12.2 per cent down. This presumably was the result of a revival of industrial activity.

Even coal class traffics showed an improvement. They were 15.3 per cent below the 1958 figure; for the preceding four weeks they were 20.6 per cent down. Total freight receipts for other carrying activities of the Commission—road haulage, ships, and inland waterways freight—were 3.9 per cent more than last year's total for these four weeks.

Nevertheless, the aggregate traffic receipts of the Commission for 24 weeks—nearly one-half—of the current year at £289,019,000 were almost £10 million below the total of a year ago. There will have to be a marked improvement in traffics if the Commission is to reduce its deficit in the next few months.

BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS PERCENTAGE VARIATION, 1959, COMPARED WITH 1957

	Four weeks to June 14		24 weeks to June 14	
<i>British Railways—</i>				
Passengers	— 8.4	— 0.1
Parcels	— 2.0	+ 1.0
Merchandise & livestock	— 3.7	+ 9.5
Minerals	— 0.3	+ 10.6
Coal & coke	— 15.3	+ 12.4
Total	— 7.3	+ 6.7
<i>Ships (passengers)</i>	— 3.6	+ 5.5
<i>British Road Services, Inland Waterways, & Ships (cargo)</i>	+ 3.9	+ 0.6
<i>British Road Transport, Provincial & Scottish</i>	+ 1.6	+ 0.5
<i>London Transport—</i>				
Railways	— 2.1	— 5.5
Road Services	—	+ 24.1
Total	—	+ 45.0
<i>Aggregate</i>	+ 2.9	+ 3.3

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of Correspondents)

British Railways Motive Power

May 22

SIR.—In your October 3, 1958, issue, you published a letter of mine challenging the case for diesel locomotives on main lines in this country. A somewhat similar letter of mine was published on March 13 last, followed a fortnight later by a letter from Dr. P. Ransome-Wallis. No replies have been received to date.

It would be interesting to know, for say, April, the following figures for Type "4" diesel locomotives and British Railways Class "4," "5," and "7" steam locomotives: in use on traffic; available for use, but not in traffic; under repair; and awaiting repair.

I do not doubt that the diesels operate high mileages, but mainly because every effort is made to use them intensely. I am spurred on to ask these questions partly because of the gloomy repair statistics for diesels published in your May 15 issue.

In support of item 6 of Dr. Ransome-Wallis's letter I gather that Type "2" diesels D.5300-19 intended for use in the London area are being moved away as their weight restricts their use too much; that similar troubles have been experienced with the D.5900 series; and that certain D.5000 series on loan to the Eastern section of the Southern Region have had their heating boilers removed for similar reasons. In addition certain other types intended for work in pairs are prohibited from doing so, yet cannot work some of the trains they were intended to work without being in pairs.

Yours faithfully,

J. B. LATHAM

Channings, Kettlewell Hill, Woking

Railway Superannuitants

May 29

SIR.—Mr. C. Grasemann's comments in your May 22 issue seem scathing, but they are true. I give two examples of the grotesque situation which has now arisen:

Although I have received no addition to my pension since retirement from a responsible position at headquarters more than six years ago I shall, through rates and taxes, help to finance increases in pension for: (a) an un promoted police constable retiring at the early age of 50 and able to obtain lucrative reemployment; and whose pension is already more than £50 superior to mine; and (b) a friend of mine whose pension is already almost three times the amount of my own.

Incidentally, I have already had to drop the friendship of most of my retired acquaintances for the simple reason that I am at the point when I can no longer hold my own with them financially.

Yours faithfully,

HERBERT W. CECIL

8, Powis Grove, Brighton, 1

Design of Passenger Coach Bogies

May 31

SIR.—I was very interested to read the letter from Mr. H. Norman in your May 15 issue. I too was surprised that the Doncaster double-bolster bogie was not used for the standard British Railways coaches, as I have always been impressed by its fine riding qualities.

The standard of passenger comfort provided by the new British Railways coaches is generally adequate for the journeys performed except in one of the most important particulars, that of the smoothness and quietness of the riding. An essential feature of our passenger stock is a standard of riding equal to the best that can be expected from present-day technical advances and to what has already been actually achieved on the Continent.

I travelled recently on one of Britain's prestige trains of outwardly smart appearance. For me its smartness soon faded as it gathered speed and I was shaken from side to side and subjected to the banging and thumping of the running gear

beneath the floor. Add to this the continuous clanking noises coming from the flexible gangways at the ends of the corridor, an annoyance I never found on pre-nationalisation buckeye close-coupled coaches. The journey was not exactly what one would expect from a 1959 express train. The above experiences have by no means been confined to that one particular journey and are typical of many runs I have made in B.R. standard stock.

One of the most alarming railway journeys I have made was in the first class accommodation at the front of an "inter-city" diesel train. The driver did not seem disturbed, being accustomed to the wildly swaying locomotive footplate. I could have travelled more comfortably in a motorcoach on the average British main road.

The British passenger is not critical enough of the rolling stock he travels in, being generally unaware of the standards now obtaining abroad. He expects a train to rock about and spill the coffee.

Yours faithfully,

R. W. JAMES

18, Westdene Crescent, Caversham, Reading

Eastern Region Timetable Maps

May 29

SIR.—I refer to the letter from Mr. Howard Diamond in your May 29 issue. A full map of the railway lines in the Eastern Region is available separately. The maps in the E.R. timetable aim at making easier the use of that timetable and at nothing else.

For that reason folds were avoided and the maps themselves kept as simple as possible by showing only important towns, junctions, terminal points of services, and the corresponding table numbers. The stations between Hackney Downs and Waltham Cross and many others were deliberately omitted; their inclusion would complicate the maps for anyone using them to plan, say, a cross-country journey. Diagrammatic form was used for clearness, but the lines do run approximately in the correct geographical direction. Sandy will be shown in the next issue.

Yours faithfully,

M. B. THOMAS
Public Relations & Publicity Officer

British Railways, Eastern Region, Liverpool Street Station, E.C.2

Curtailing Railway Services

May 22

SIR.—Your recent articles on British Railways finances give the confirmed railway user a feeling of frustration. Apparently lines will continue to be closed, services curtailed, charges raised, and staff dispirited with depressed remuneration, whilst a tangled web of accountancy struggles to redeem a gigantic deficit and to pay interest from one lot of publicly-owned money to another.

Road transport bears a heavy cost in human life, but the nation shows little real anxiety. Failure to balance the railway books is apparently far more serious, and train services must be cut regardless of the consequences. The political enthusiasts for nationalisation proclaimed that service and not finance would rule the railways of the future. The reverse seems to be the case when lines like the Keswick branch, in no sense dead wood, are considered for the axe.

A partial solution would seem to be new methods of integrating the railway more deeply into the life of the public. People should be encouraged to buy stamps to pay for future rail travel, as they were by the L.M.S.R. before the war. That would cushion the effect of fare increases. The policy might even be developed into an attack on the temptation to buy private transport.

Yours faithfully,

WILLIAM B. STOCKS

22, Heatherfield Road, Marsh, Huddersfield

THE SCRAP HEAP

Compensation

Councillor Frank Davis, of Finchley, President of the recently formed Passengers' Protection Association, received a cheque for £30 from British Railways in compensation for soup having been spilled over him while travelling four weeks ago.—*From "The Times."*

Top Marks

One of my readers suggested to British Railways that to mark the centenary of Wellington College they might put the Schools Class locomotive Wellington to work on the Reading-Redhill line. British Railways, he tells me, have imaginatively agreed. This engine pulled the 12.15 from Reading and the 3.4 from Redhill on June 20.—*From "Peterborough" in "The Daily Telegraph."*

Bouquets for British Railways

No less than 16 of the 140 passengers who travelled on a recent British Railways, London Midland Region, excursion, afterwards wrote to the railway praising the trip. Among comments made were "Simply grand, right from the start," "Journey was 'Out of this world,'" "Obviously great deal of foresight and initiative necessary." The excursion ran overnight from the East Midlands to Oban where the travellers embarked for a day's sail round the Isle of Mull. Most of the letters were written on behalf of two or more people and in addition to compliments contained useful suggestions.

Nairobi Diamond Jubilee

On June 5, 1899, the Uganda Railway had reached mile 327 from Mombasa, and there sprang up the town which is now the city of Nairobi. During the

diamond jubilee celebrations Nairobi Station displayed an illuminated diamond at its entrance.

Queen's Journey on White Pass Line

Royal journeys on the 3-ft. gauge White Pass & Yukon Railway must be very rare. The Queen on her recent tour of Canada travelled on the line for a little way from Whitehorse, in the Yukon, with its memories of the Klondike "gold rush" of 1898, and MacRae. Access to the Klondike gold diggings was the main reason for building the railway at the turn of the century.

Motive Power Changes in the U.S.A.

A graphic indication of the remarkable changeover in motive power in the U.S.A. is provided by the following tabulation, based on figures issued from time to time by the Association of American Railroads:

Year	Steam Dec. 31	Elec. (Units)	Diesel (Units)	Total
1945	38,853	842	3,816	43,530*
1946	37,551	832	4,441	42,841*
1947	35,108	821	5,772	41,719*
1948	32,914	829	8,089	41,851*
1949	28,964	817	10,888	40,691*
1950	25,640	788	14,047	40,494*
1951	21,747	780	17,493	40,036*
1952	15,903	756	20,604	37,263
1953	11,696	699	22,681	35,076
1954	8,443	656	23,757	32,856
1955	5,946	634	24,924	31,504
1956	3,654	608	26,215	30,477
1957	2,344	587	27,345	30,276
1958	1,284	559	27,744	29,587

* Includes petrol railcars and other forms of motive power.

Strike Settled on TV Train

A strike of 120 women machinists was settled recently on the closed circuit television of a (British Railways, Scottish Region) train to Edinburgh, and work was resumed. The machinists at the Port Glasgow factory of Woven-air Limited had been on strike for two days over an allegation that a worker had been

dismissed because she refused to work overtime. The manageress accompanied the firm's employees, including the women on strike, on their outing and while in the train appeared on the closed circuit television. She thanked the women for their co-operation during the day and added: "Let's bury the hatchet and bring your colleague back with you. She will have her job back." All the women reported for work next day.—*From "The Manchester Guardian."*

Ironhorsefanmanship?

The Ferroequinologist is the title of a monthly magazine published in California for railway enthusiasts.

Current Event

A Sydney railway linesman, Giuseppe Nasato, hung suspended from a 1,500-V. overhead cable for 10 sec., fell on to a moving train and escaped with minor burns. The train had knocked a ladder from under his feet.—*From the "Evening News."*

Perfumed Platforms

The Paris Metro has brought into effect its plans for disinfecting platforms and stations by means of a spray, mounted at the back of the trains, which on the arrival of the train in the station proceeds to spray the permanent way. The purpose is primarily to disinfect the stations, but travellers will notice only the agreeable smell after the departure of the train. Four lines so far have been equipped with this new apparatus, three of them suggesting the scent of the carnation, and the fourth—which incidentally passes through the Halles station, the Covent Garden and Billingsgate of Paris—a pungent smell of pine.—*From "The Times."*

The Little Lines

When branch lines are declining
And struggling to survive,
The little lines of Britain
Somehow still keep alive.

These much-loved little railways
Remind us of a land
Where history and romance
Went roaming hand in hand.

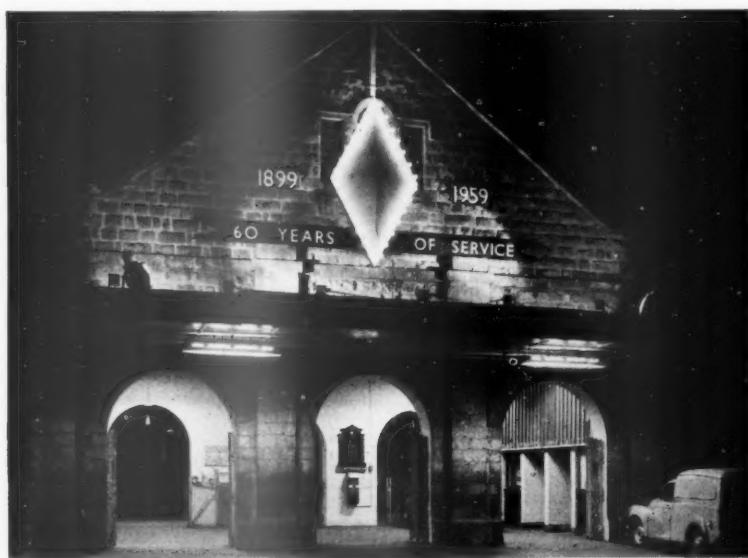
By mountain, marsh, and moorland,
They make their leisurely way,
Unworried by big business,
Sufficient for the day.

Festiniog, Portmadoc,
Romney and Dymchurch too
Exemplify what courage
And willing hands can do.

Snowdonia echoes progress
And now there comes a sign
That sparks of life still flicker
Along the "Bluebell Line."

The little lines of Britain
Are tiny, but they're tough.
More power to their elbow—
Long may they do their stuff!

A.B.



Illuminated diamond at the entrance to Nairobi Station to mark the diamond jubilee of the city of Nairobi

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

Broad Gauge Survey to Kandla Port

The port of Kandla on the Gulf of Kutch in western India is developing rapidly and has great potential traffic possibilities. It is, however, served only by the Western Railway metre-gauge system at present, so that traffic with the hinterland 5-ft. 6-in. gauge system necessitates transhipment with its drawbacks and abuses. Consequently, to develop the port fully, the Government of India has decided that it must be served directly by a 5 ft. 6 in. gauge connection. Already, a final location and traffic survey is in hand for a line between Kandla and Jhund, of broad gauge and about 145 miles in length, in pursuance of that decision.

WESTERN AUSTRALIA

Wheat Traffic

After transporting more than 360,000 tons of superphosphate in time for seeding operations, the Government Railways is now concentrating on a large-scale wheat haulage programme. Shuttle services for the carriage of wheat are now operating from Narembeen in the South, Walgooran and Cunderdin in the East, and from Pithara in the North. Wheat trains from these points would work loads towards the coast. All of the wheat from present operations will be stored in the 5,000,000 bushel silo at Midland Junction.

To make storage room available for the next harvest about 830,000 tons of wheat have to be transported before mid October, and to accomplish this task,

the Railways has set itself a target to carry 40,000 tons of wheat each week. Total wheat haulage for the current season, which commenced on December 1, 1958, up to May 16, 1959, was 484,828 tons compared with 355,027 tons for the corresponding period of the immediately preceding season.

The record wheat and grain harvest in Western Australia this year is making unprecedented demands on the railways for transport to mills and seaport, but despite abnormally heavy tonnages of fertiliser also hauled to the country the Department has met the current demand for wagons for wheat without any undue delay.

VICTORIA

Elimination of Level Crossings

Level crossings will be eliminated on the route of the Melbourne-Albury standard gauge track wherever practicable and provided finance is available to carry out the work. The Inter-departmental committee on the abolition of level crossings has under consideration at present overpasses to replace level crossings at Hampshire Road, Sunshine; Ballarat Road, Albion; Craigieburn, and Tallarook. The Country Roads Board is investigating a scheme for the deviation of the Hume Highway in the Chiltern-Barnawartha area to a new alignment on the eastern side of the railway. In addition, investigations are being made into the construction of an overpass at Roy Street, Wangaratta, and another to replace existing crossings at Rowen and Templeton Streets in the same area. It is also proposed to con-

struct an overpass at the existing level crossing at Anderson Street, Euroa.

A depot has been established at Broadmeadows to enable bridge and culvert work between Broadmeadows and Donnybrook to be commenced. Bridge and culvert work for the standard gauge project, generally, is progressing according to plan.

NEW ZEALAND

Rail and Road Terminal

Tenders for erection of a new rail and road terminal building at Rotorua are expected to be called about the end of July. Following agreement between the Railways Department and the Rotorua Borough Council on certain aspects of the facilities to be provided, good progress has been made with the preparation of the working plans by the Department's Architectural Division. It is expected that the plans and schedules of quantities will be complete about the end of July.

The building will be 284 ft. long by 28 ft. wide, and will be served by a 260-ft. railway platform on one side and sheltered loading or unloading space for up to 10 buses on the other side. Centrally situated on the ground floor will be a spacious general waiting room opening on the right to a public relations office, and on the left to an open-counter type booking office. The booking office will handle both rail and road tickets and reservations, and the parcels and luggage facilities for both rail and road services will be similarly combined.

Other accommodation on the ground floor will include a self-contained refreshment service with convenient access from both the rail and the road platforms, staff amenities such as locker, wash, and lunch rooms, and a ladies' rest room. An 89-ft. long first-floor section, reached by two staircases, will accommodate administrative offices, communications staff, the Rotorua District Manager of Road Services and his staff, the Chief Stationmaster, the teleprinter room, and the railway telephone exchange.

ARGENTINA

Roca Railway Suburban Electrification

The Argentine State Railways (E.F.E.A.) has drawn up a draft scheme for the electrification of the General Roca Railway suburban lines in the Buenos Aires zone, and has submitted it to a number of European and American firms to obtain their observations and recommendations. Once these have been received, the scheme will be reconsidered and moulded into its definite shape, so that tenders for the work may be called for—a development which is expected by the beginning of 1960.

The first part of the plan contemplates the electrification of the following lines: Constitucion-Quilmes-La Plata; Constitucion-Temperley-Villa Elisa; Temperley-Glew; Temperley-Ezeiza; and Beria-

Steam Working in Canada



Photo

P. C. Allen

Ottawa train leaving Rigaud, Quebec, headed by a "Royal Hudson" locomotive, Canadian Pacific Railway

zategui-Bosques, with a route mileage of 82 and a track mileage of 190. Monophasic current at the industrial frequency of 50 cycles and at 25,000V. is recommended by the special committee which produced the plan.

Coaches will be 82 ft. in length, carrying 90 one-class passengers seated and 70 standing, with four side doors and floors at platform level. Maximum speed is estimated at 87 m.p.h., with two or three motor coaches in each train, according to length.

The initial train service would need 38 trains leaving or entering Constitucion at peak hours. The growth of traffic will be dealt with by increasing the number of coaches per train; the first stage will be 38,400 passengers per hr. with 498 coaches, arriving ultimately at the figure of 60,800 passengers per hr. with 700 coaches and 10-coach trains.

It is not considered economical to provide a separate power station, and it is suggested that the railway should participate in the new South Dock power station at present under construction by British capital. It is estimated that at peak hours 100,000 kW. would be needed. The introduction of electric trains will call for a complete remodelling of the signalling installations.

Engineering works are numerous and costly, and include construction of two further tracks between Constitucion and Temperley; a new high level crossing at Pavon Junction; elimination of level crossings between Constitucion and Tem-

perley; elevation of level of station platforms; realignment of layout of Constitucion, Temperley, and La Plata stations; new sidings, and bridges.

EAST AFRICA

More Visitors for Uganda

Visitors from America, Johannesburg, Salisbury, and Aden are among those who are swelling the tourist trade to Uganda, by means of the East African Railways & Harbours inclusive tours to Murchison Falls and Nimule on the Albert Nile. Since E.A.R. & H. doubled the service up the Nile in March there has been a spate of bookings and there are only 10 vacancies in the list up to the end of September. A new link is being considered with East African Airways and Central African Airways to bring more visitors from South and Central Africa. With the expectation of more tourists E.A.R. & H. is planning to increase the facilities in Uganda.

SWITZERLAND

Lake of Constance Train Ferry

The Federal Railways have put in service a new train ferry, the *Romanshorn*, to operate between that port and Friedrichshafen on the German shore. The vessel is symmetrical in form, 182 ft. long by 40 ft. wide, drawing 6 ft. 8 in. of water when fully loaded. Its two railway tracks can accommodate 12 wagons, or 20 large motorcars.

There is seating for 125 passengers in the saloon, where refreshments are obtainable, for 104 in two lower saloons, and for 236 on the decks; the maximum passenger complement is 560. Empty, the vessel weighs 450 tons, and it can carry a maximum load of 320 tons.

Propulsion is by two 600-h.p. diesel motors, which by a hydraulic transmission drive a screw of the Voith-Schneider type, used for the first time in Switzerland in this vessel. In conjunction with the symmetrical shape of the ship, this permits very great variation of manoeuvre, which will greatly facilitate handling in the confined space of the Romanshorn and Friedrichshafen harbours. The ship is equipped with radar.

WESTERN GERMANY

Drachenfels Railway

Public service has been resumed on the Drachenfels rack railway at Königs-winter, on the Rhine. The line had remained closed since September 14 as the result of an accident, the first in the line's 75-year history in which a heavily loaded three-car steam train left the rails on the descent and 17 people were killed and 94 injured. Proceedings have been instituted in Bonn against four of the railway staff. Steam traction will no longer be used, and the entire service is now worked by the three electric cars, which had previously been assisted by steam trains at peak traffic periods.

Publications Received

Cable Glands.—A catalogue issued by the Combination Metallic Packing Co. (1921) Ltd., Glasshouse Street, St. Peters, Newcastle-upon-Tyne, describes cable glands for most types of electric cable. This firm manufactures special glands stated to deal with every aspect of cable termination, and "tailor-made" to fit. The ingress of water is prevented by a simple patented crimped-on brass gland with a lead lining which allows the bore size to be adjusted in the minimum of time. The catalogue explains the principle and the manner of applying it to cables both with and without armour and braiding. Types and bore sizes are listed in each category with illustrated fitting instructions.

Morganite Carbon Brushes.—A 24-page catalogue of carbon brushes issued by the Morgan Crucible Co. Ltd., Battersea Church Road, S.W.11, should be of considerable value to manufacturers of motors and generators, drum controllers, and other types of switchgear, and to most large-scale users of electrical plant. The introductory sections deal with the development of the firm during 100 years, give the reasons for the almost exclusive use of manufactured carbon for current-collecting devices, and describe carbon production and the process control methods exercised. The recommended sphere of use and the main characteristics of each Morganite carbon grade,

with relevant technical data, are given in tables. The latter are accompanied by notes on variations from standard practice for specific duties. A complete set of characteristic curves relates current densities to contact speeds. Clear diagrams simplify the ordering of all sizes and shapes of carbon brush. The manufacturing techniques used in attaching flexible conductors for brushes, the use of protective metal and plastic brush tops, brush mounting, some typical Morganite brush holders, troubles and their causes, and servicing accessories are described and illustrated.

Steel Foundry Service.—A 28-page booklet by the North British Steel Foundry Limited, of Bathgate, Scotland, describes how its foundry is equipped to ensure the full benefits to customers using the steel casting process. Details described are the controls applied to processes, materials, and production; the machining of steel castings, their conjunction into part-assemblies, and integration into fabricated assemblies. The factors which chiefly influence the design of cast steel parts, and the condition in which these parts are supplied, also are discussed. Besides giving a comprehensive guide to the services and facilities which the North British Steel Foundry Limited can provide, this booklet is a source of reference to the use of steel castings and steels generally. In an 11-page reference section, the mechanical properties, chemical test re-

quirements, and equivalent specifications are given for 31 steels, with short descriptions of their individual properties and applications. This section includes a table of basic properties which can be used to give immediately the steel specification, or specifications, in which any particular property is given major expression. Copies may be obtained from the North British Steel Foundry Limited, Bathgate, Scotland.

Non-Sparking Safety Tools.—A 16-page illustrated catalogue available from Charles Carr Limited, Grove Lane, Smethwick, 40, Birmingham, lists "Lily" brand non-sparking tools for use in potentially explosive atmospheres. Carr's aluminium bronze which has 0.5 per cent maximum iron content, is stated to be sufficiently hard to give longer service than other alloys and to excel in its capability of absorbing shock. The catalogue includes a copy of a technical report by independent research laboratories detailing a series of grinding and striking tests carried out to prove the spark-resisting qualities of Carr's hammer heads, cold chisels, and spanners compared with orthodox steel tools. Other non-sparking tools listed and priced include shovels, forks, scrapers, crow bars, wedges, picks, screwdrivers, clamps, pliers, and lifting chains. All are intended for use in engine rooms, spraying booths, mines, and other industrial and marine situations where inflammable gases are likely to accumulate.

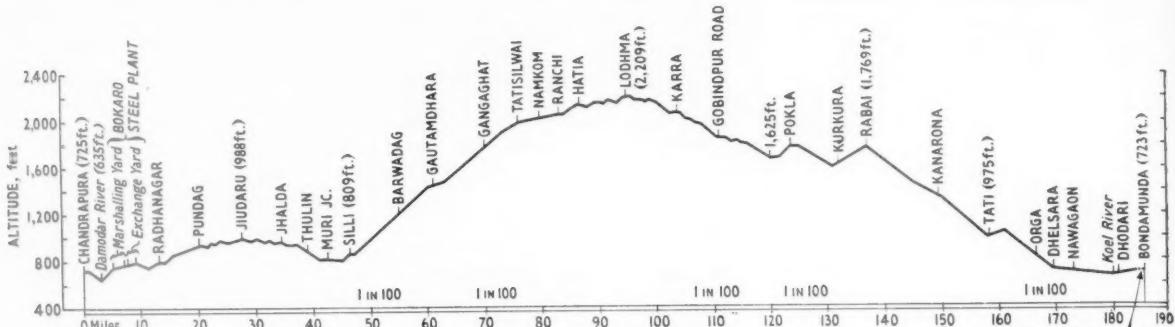
New Indian Mineral Railway

Designed for movement of 7,000-ton trains on long 1 in 100 gradients

ONE of the keys to the success of the Indian Five-year Plan policy is likely to be the new railway at present under construction to form a 180-mile link between the Bokaro coalfield and its 2,500,000-ton steel plant on the one hand

In supersession of the earlier survey from Barkakana, a preliminary-cum-final location survey was carried out by the Eastern Railway in 1956-57, the route followed being from Chandrapura via Muri, Ranchi and Hatia to Bondamunda;

and Daltonganj is joined by the South Eastern line from Adra. The Bokaro and other coalfields are thus easily reached and near at hand. Moreover, the Bokaro steel plant and coal washeries are just across the Damodar River from



Profile of Chandrapura to Bondamunda line, Eastern Railway of India

and the steelworks at Rourkela and Bhilai on the other. It will also serve coal washeries and a forge-foundry and heavy-machine-building plant situated en route.

To carry heavy mineral traffic the new line had to be of 5 ft. 6 in. gauge.

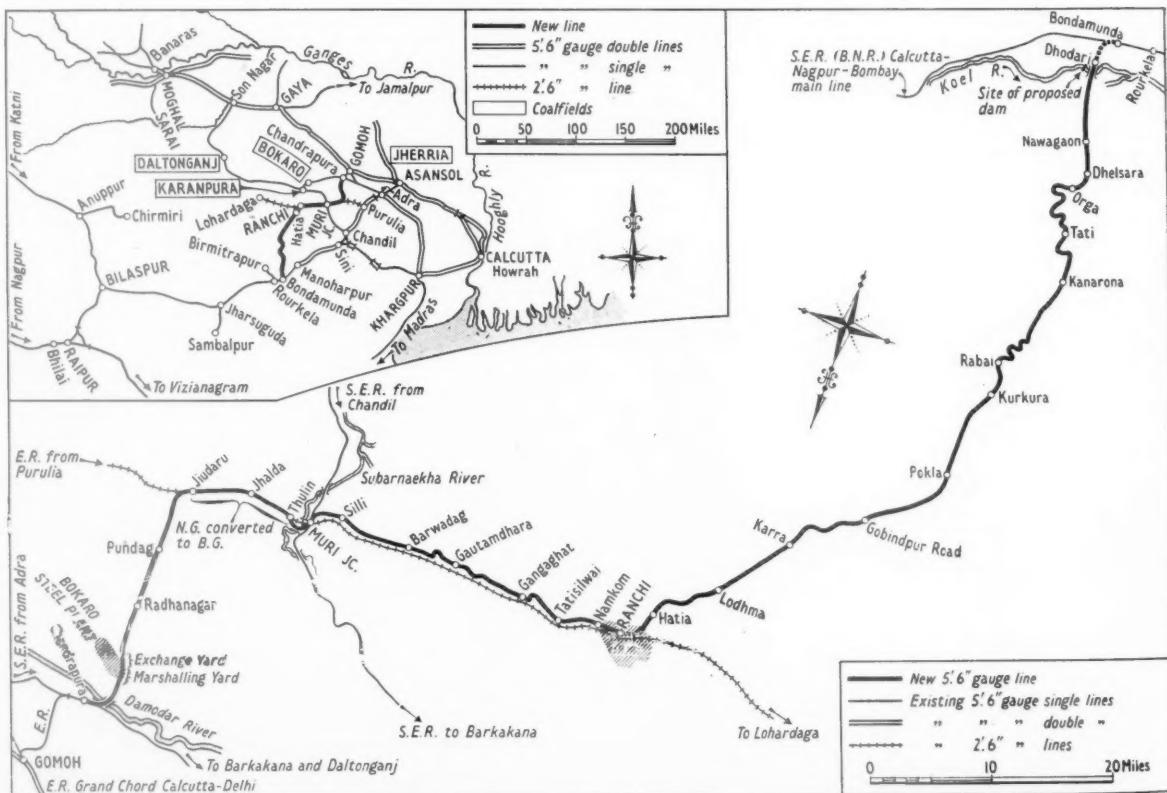
it was completed in the one season. Bondamunda is 185 miles from Chandrapura.

As seen from the maps, Chandrapura is the junction where the E.R. line from Gomoh—on the Grand Chord route from Calcutta to Delhi—to Barkakana

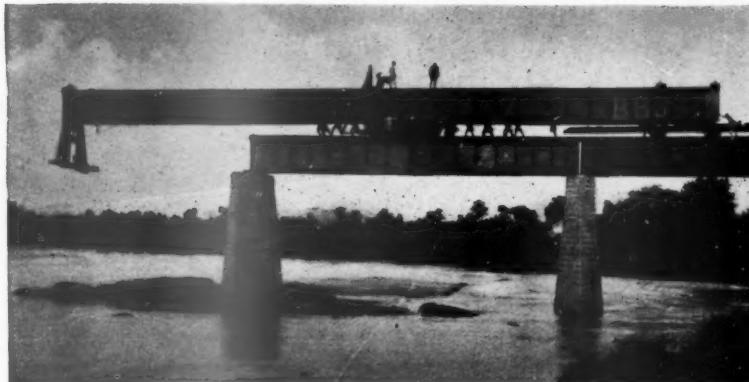
Chandrapura, which is an ideal starting point for the new line from the point of view of traffic.

Chandrapura-Muri

Leaving the station westwards, the latter swings round southwards and, in a



Index plan of Chandrapura—Bondamunda railway, with inset map showing surrounding connections



Erection of girder of bridge over the Subarnarekha River near Muri

sharply-inclined dip, crosses the Damodar near mile three. The bridge consists of one through-girder span of 150 ft., and nine 100-ft. and one 60-ft. deck plate-girder spans, the whole being over 1,100 ft. in length. The river bed is of rock so that open foundations were possible. There is, however, a "gorge" in it which is spanned by the 150-ft. span, rail level being 90 ft. above its rock-bed.

Almost immediately beyond the river is the steel plant, and here are successively a marshalling and an exchange yard. They will also serve the Dugda coalwashery. The line then continues nearly due-southwards until, at Jidaru near mile 27, it meets the E.R. 2 ft. 6 in. gauge line from Purulia to Muri, Ranchi and Lohardaga. Turning westwards, the new broad-gauge follows more or less closely the alignment of the narrow-gauge line all the way to Ranchi. From Jidaru to Thulin, near Muri, the narrow-gauge track is being dismantled and replaced by 5 ft. 6 in.

At Muri, mile 42½, junction is made with the Chandil-Barkakana branch of the S.E.R. running south to north and athwart the general direction of the Jidaru-Ranchi section of the new line. It was therefore necessary to deviate from the 2 ft. 6 in. alignment at Thulin

and swing out northwards (or southwards) to allow of a wide S-curve suitable for 5 ft. 6 in. gauge. A northward deviation and approach to the existing station at Muri was considered essential because, until the Muri-Bondamunda section has been completed, it will be necessary for Bokaro coal to flow to Rourkela and Bhilai via Muri, Chandil and Sini on the S.E.R. main line. On this deviation a new bridge has been built over the Subarnarekha River. Though the latter has a sandy bed there is rock from 10 ft. to 18 ft. below its surface; open foundations were thus again constructed for piers and abutments to carry nine spans each 60 ft. long.

Silli-Lodhma Incline

As far as Silli, about four miles beyond Muri Junction, no long gradients were necessary and the earthwork was light. Onwards, however, the main ascent to the Ranchi plateau had to be faced. The 2 ft. 6 in. gauge line has a 1 in 80 ruling gradient, and as that of the new broad-gauge route is 1 in 100 the narrow-gauge alignment could not be closely followed over long stretches. Additional length had, in fact, to be developed and the easier broad-gauge curves involved much heavier earthwork. Except

for three miles of slightly easier gradients through Gautamdhara there is a continuous rise at 1 in 100 from Silli to Tatisilwai, a distance of over 29 miles, the climb through 1,124 ft. in this distance presenting a formidable task to heavy mineral trains. In places deep cuts and high fills were necessary and this length of line embodies some fine construction work.

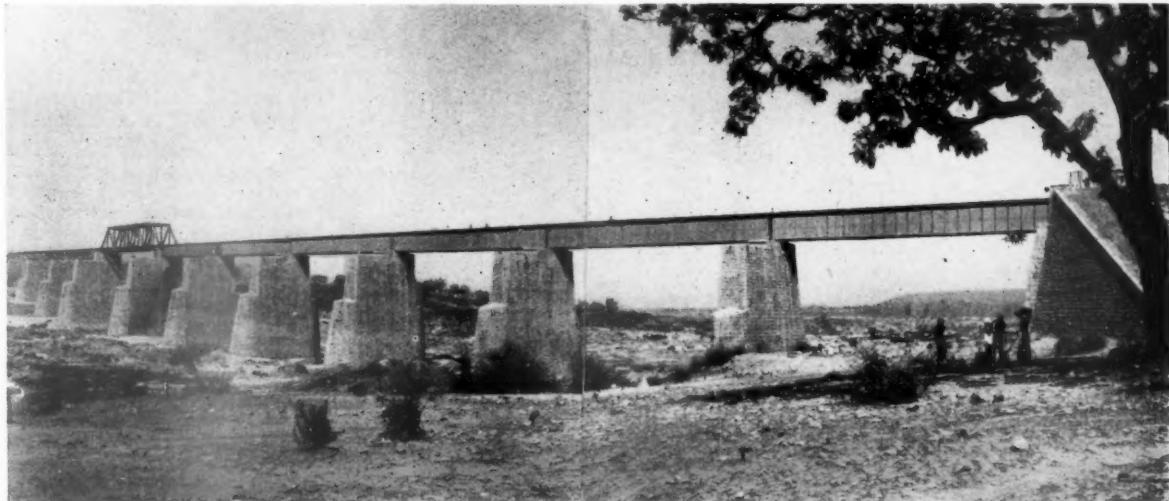
From Tatisilwai onwards through Ranchi—the former capital of Bihar & Orissa Province—and Hatia, the new steel manufacturing centre, the line continues to rise to a point at mile 95 just beyond Lodhma, where formation level is 2,209 ft., the summit of the whole line. As the level near Silli is only 809 ft. it follows that there is a rise of 1,400 ft. in the intervening 50 miles.

Lodhma-Bondamunda

From Lodhma to Rabai there is a 41-mile general descent broken by two countergrades aggregating eight miles in length, which like all the other serious gradients is at 1 in 100. From Rabai begins the most formidable obstacle to northbound trains, the descent from 1,769 ft. to little above 700 ft. at Dhelsara—over 1,000 ft. in 32 miles—virtually all at 1 in 100, apart from a three-mile countergrade near Tati. The remaining 15 miles are generally level into Bondamunda.

The descent is likely to be a very costly stretch of construction, there being heavy earthworks for many miles continuously. There are also many major bridges including two crossings of the Deo River, and finally the Koel River bridge only about four miles short of Bondamunda. As located, this bridge will have six spans of 100 ft., five of 60 ft. and two of 40 ft., so that it will be second only to the Damodar. As, however, it is stated that a dam is proposed to be built across the Koel about a mile upstream of the bridge the latter may possibly be subject to modification.

The estimated engineering cost of the whole line, including the yards at Dugda



Bridge over the Damodar River near Chandrapura: one 150-ft. through truss span, nine 100-ft. deck plate-girder spans, and one 60-ft. span

serving the Bokaro steelworks, is about £20,000,000 to which must be added some £1,800,000 for electrification, and a further £6,000,000 for special rolling stock, or nearly £28,000,000 in all.

As the line will be single throughout, though with ample crossing loops, it is considered that even the initial traffic offering will have to be moved in trains of not less than 3,000 tons gross, using two electric locomotives for each. As, however, it seems probable that traffic will greatly increase beyond that expected to be carried as soon as the line is open, provision is being made for an extension of each station yard, situated 12 to 15 miles apart, to accommodate 7,000-ton trains hauled by at least four electric locomotives. Apparently, the feasibility of working such trains is confirmed by the main-line electrification project now partly completed.

The exact mileage into Bondamunda station is not shown on the E.R. survey drawings, but it will probably be about 185 miles from Chandrapura.



Another view of bridge over Damodar near Chandrapura. Note piers built for future doubling

Electrification Progress in South Africa

Development of electric traction in the Vereeniging area of South African Railways

The electrification of the railway network of which Vereeniging is the geographical centre is one of the major products of the plan to improve railway services in South Africa. The time is now in sight when electric railway traction will be used on all the lines from the Reef to Vereeniging and also on the developing industrial area in the Free State of which Kroonstad, Coalbrook, and Sasolburg are the principal centres.

The electrification programme in these areas was estimated to cost £6,038,757 of which £4,283,163 has already been expended.

Wattles-Vereeniging-Coalbrook Line

The first electric trains over the Wattles-Vereeniging section are expected to run towards the end of August or early in September, while on the Vereeniging-

Coalbrook section, all wires on the main line have been run and the erection of steelwork and wiring in the station yards was begun recently. The estimated cost of electrification of the Wattles to Vereeniging and Coalbrook section is £1,361,168 of which £1,203,157 had been spent up to March 31, 1959.

Coalbrook-Kroonstad-Gunhill

An amount of £1,458,588 of the sanctioned total of £1,919,394 had been spent on the Coalbrook-Kroonstad-Gunhill section by the end of March last and the work from Coalbrook to Kroonstad is practically complete. The station yards at Wolwheok, Ywer, Greenlands, Dover, Leeustroom, Koppies, Rooiwal, and Serfontein are complete except for minor details. With the exception of Kroonstad and Gunhill yards all steel-work has been erected. Electric trains will be running over this section in October, 1959.

Springs-Natalspuit

It is anticipated that all electrification work on the Springs-Natalspuit section will be completed in August. The cost of the work is estimated at £326,878 of which £293,677 has been spent.

Work on the Witbank-Welgedag line which is expected to cost £1,650,629, of which expenditure to the end of March was £1,150,455, is progressing well. All foundations, except for a few in the Witbank yard, have been cast, some 40 per cent of the steelwork erected, and 44 miles of overhead wiring run out.

All foundations on the Ogies-Broodniersplaas section have been completed and £177,286 of the total estimated cost of £780,688 spent.

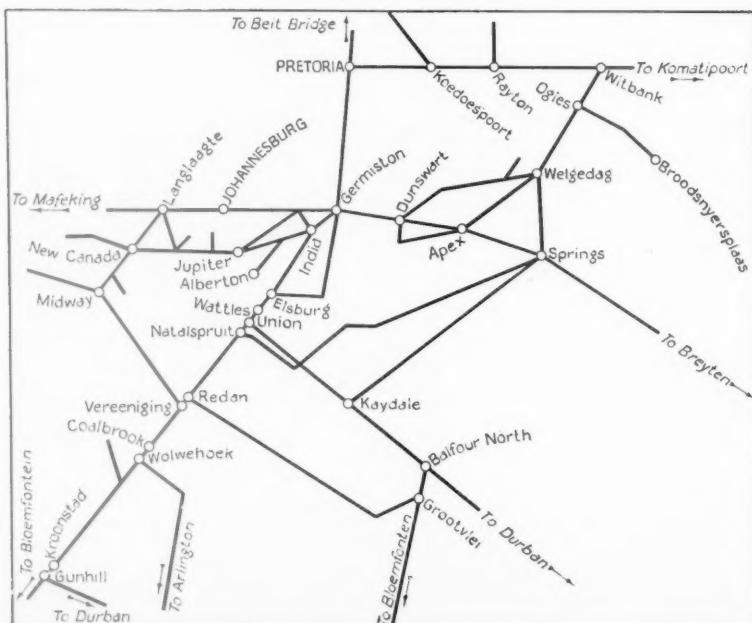


Diagram of lines in the Vereeniging area, South African Railways

Diesel-Electric Locomotive Testing at Derby

*Load testing up to 2,500 h.p.
with natural cooling of resistors*



Diesel-electric test house at Derby for the load testing of engine, generator, and ancillary equipment

A NEW test house fully equipped for testing new and reconditioned diesel-electric locomotives recently has been commissioned at the Derby locomotive works of British Railways. Since the introduction of diesel-electric shunters and main-line locomotives, various types of load testing equipment have been used. When the decision was taken to install equipment for the testing of locomotives up to 2,500 h.p., a considerable amount of experience therefore was available at Derby for the planning and design of a completely new plant.

Water tank type resistors using soda ash in the make-up had been found unsatisfactory, considerable maintenance being required to deal with rapid corrosion, de-sludging, and renewal of electrodes. Air-cooled resistors available were of the forced-ventilated type and necessitated shutting down when switching for load changes. As ample space was available in the roof space of the new test house it was decided to use natural cooling of the resistors, and thus eliminate the ancillary equipment and automatic safety control required with forced draught cooling.

The scheme adopted by the Chief Mechanical & Electrical Engineer's Department at Derby was to make up banks of grid resistors using Expanmet resistor elements, and a system of graded control which allows any required load changes to be made while running. In addition, a vernier control gives the equivalent of 15 steps between each notch of the main controller when handling the lower-h.p. locomotives. To ensure the quickest possible turn-round the

main-line locomotive side of the test house is equipped with two suitably spaced connection panels. This allows the work of test cable connection or disconnection to one locomotive to proceed while the adjacent locomotive is running on load.

Loud-speaker telephone equipment is installed for communication between the

control room, engine room, and cab. In the control room the loud-speaker, working from an 8W. amplifier, is built into the desk and the microphone is mounted on a telescopic arm over the main controller. A hand microphone is provided at each of the two writing desks. Two portable loud-speakers and hand microphones are used in the locomotive, with cable plug-in connections on the test house wall. To eliminate background noise each microphone is fitted with a "press-to-talk" switch.

Two 80-ft. Tracks

The two-storey main building is 80 ft. long by 35 ft. wide, housing one test road for main-line locomotives and one for shunters. Sliding doors at both ends allow through access on each track. An electric capstan is available for the movement of locomotives not under power. White-tiled inspection pits, fitted with fluorescent lighting, are provided on each road. Lifting facilities are provided by a two-ton capacity overhead travelling electric crane.

The control rooms are built as extensions at each side of the main structure, with a full-length window looking into the main building. For maximum vision the centre section of the window is in the form of a bay, projecting inside the building, and the control-room floor is at foot-plate level. The space below the control room is used as a shunt chamber.

Double glazing is used to reduce noise, and the walls are lined with sound-proofing material. Rubber matting is used as floor covering. The inside walls of the main building also are lined to



Inside the test house. Cables on extreme right are of sufficient length to permit testing of locomotives outside the main building



Control-room deck for main-line locomotives. Test controller using hand microphone to check instrument readings in locomotive

reduce noise. An exhaust duct 2 ft. 6 in. dia. is provided for the main-line locomotives and a 10 in. exhaust pipe for the shunters.

At a height of 23 ft. above ground level is the floor of the room housing the banks of resistors and the contactors. This room, which extends over the full area of the main building, is ventilated by concrete louvred panels in each side and a ventilation aperture in the roof which extends for the full length of the building. An asbestos heat shield is fitted at 10 ft. above floor level over each bank of resistors to protect the roof from radiated heat. A dividing screen of asbestos is mounted between the shunter- and main-line-locomotive resistors. Heat-resisting material is used also to protect the floor under each resistor unit. The busbar connections between the resistor room, control room, and shunt chamber are carried in a vertical duct 5 ft. square. Also this duct provides a convenient and safe location for the changeover links and switches of the two connection panels.

Traction-Type Contactors

Each resistance block is made up of six sub-assemblies, carried in a steel frame fitted with perforated metal covers. Cooling air circulation is by convection. The blocks are mounted on steel rails 1 ft. above floor level. For the 2,500 h.p. resistor two rows of blocks, 17 in. each, are provided. Between the rows, which are 3 ft. apart, are fitted the 18 traction-type electro-pneumatic contactors and 4 in. x $\frac{1}{8}$ in. aluminium busbar connections.

The 400-h.p. shunter resistor consists of a single row of five blocks. One block in each section is tapped for vernier control. These are controlled by electromagnetic contactors. The air supply for the electro-pneumatic contactors is taken

from the 80 lb. sq. in. works ring main. A 2-kW. rectifier is used to supply 100 V. d.c. current.

The control desk extends over the full length of the room, with a writing desk at each end. At the front of the desk, in the centre, is a 14-notch drum controller for the main contactors and a 15-notch controller for the vernier contactors. Connections to the contactors are made by asbestos covered cable run in steel trunking.

To secure the maximum standardisation of instruments required for main-

line and shunter control rooms and for field testing, the desks are fitted with portable style instruments. These are precision grade instruments with 6-in. mirror scales. A wide range of test circuits and instruments is provided to deal with the various locomotive control systems and ancillary equipment. Range selector switches are fitted adjacent to the instruments and there are indicator lights to show the selected position.

Indicator lights also are provided to cover the changeover switch connections for the two plug-in connection panels in the test and the shunt-chamber connections. The connection panel switching is located in the busbar chamber. Links are used for the heavy-current main and auxiliary generator circuits.

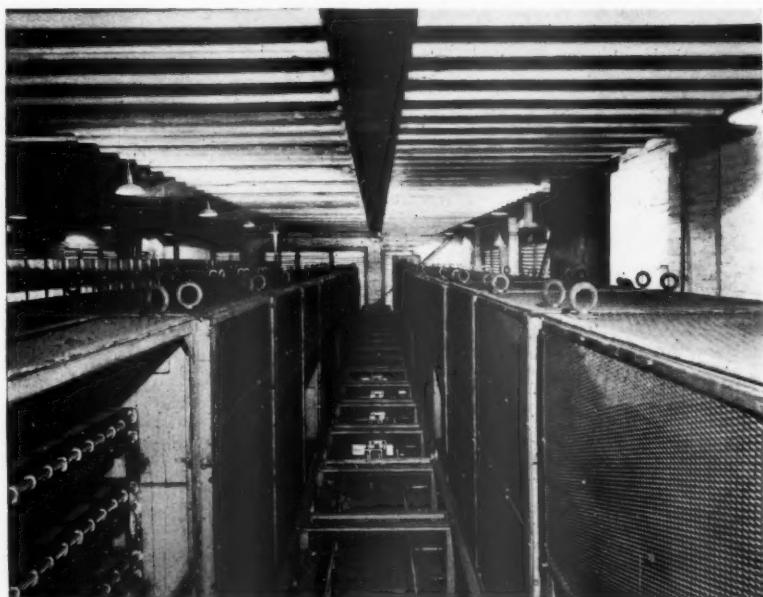
Protection of Staff

For the protection of the staff and equipment all circuit connections are protected by interlocking safety relay equipment, which ensures that the engine cannot be started until all connections have been made correctly.

Warning lights and safety switches are fitted for personnel protection when working on the test equipment or locomotive, and if a switch is moved from the safe position the engine is automatically stopped.

All detachable cables are identified by coloured tapes, corresponding with the colour markings on the socket panels. Portable equipment includes a 3,000V. flash tester, a self-propelled starting-battery trolley, and a battery charger. Electric heaters are fitted in the control rooms and blower fan steam radiators in the main building.

In addition to the local testing of the main equipment a complete check is made of all electrical circuits and ancillary equipment. Preparation for test of a new main-line locomotive takes about 3 hrs. and the testing 2½ - 3 days.



Twin-bank load resistors for main-line locomotive testing. Between the two banks are the contactors and busbar connections

Stratford Repair Shops

Conversion scheme for plant to deal with heavy overhauls of all Eastern Region line service diesel locomotives in the initial stages of operation



General view in No. 1 bay, showing English Electric and Brush locomotives

TO cope with the heavy repairs to the main-line diesel locomotives running, and to be put into service later, in the Eastern Region of British Railways, Stratford works is being converted to undertake all this work and also the heavy repairs to a number of standard diesel-electric and diesel-mechanical shunters, to the exclusion of steam locomotives. Heavy overhauls to steam engines terminated at the end of 1957, so that conversion of the shops hitherto dealing with steam engine and tender repairs could be undertaken.

Though the shop is not yet in full operation, a number of stage 1 repairs and miscellaneous repairs and renewals have already been done on the Brush 1,250 and English Electric 2,000 b.h.p. locomotives allocated to the Eastern Region. Eventually some 400 line-service diesel locomotives will be based on Stratford for heavy repairs, of the types indicated in Table I; and then day-shift and night-shift working will be introduced to minimise time out of traffic; and in full operation it is anticipated that eight to ten locomotives will be under repair simultaneously. Interchange of complete engines, and of engine parts, transmission constituents, bogies and other details is to be practised as far as possible to reduce the time the motive

power is laid up. The whole of the planning, conversion and re-equipping has been carried out under the direction and supervision of Mr. K. J. Cook, the retiring Chief Mechanical Engineer of the Eastern Region.

The repair shop covers 7,750 sq. yd. and comprises three bays each 50 ft. in width, and 480 ft. in length. The two outside bays are each provided with two 40-ton cranes. Access to the shop from the tracks outside is gained through eight Brady electrically-operated roller shutter doors. The shop has been renovated with lighting of the cold cathode type and with additional pit lighting; and there is also a high-pressure hot-water heating system to give good working conditions. The installation of a large variety of special plant has been necessary to deal essentially with the type of repairs that diesel locomotives require and the accompanying plan shows the general layout of each of the three bays with their equipment.

Main-Line Locomotive Repairs

Bay No. 1 is the locomotive section used for heavy and light repairs to the main-line locomotives, and this contains a 2,000 h.p. testing plant of the forced-ventilated loading resistor type, a chromated water treatment supply for radi-

tors, and also the inside connections for the fuel and lubricating oil supplies, both for emptying the tanks before repairs and refilling the tanks for comprehensive testing. Also installed in this bay is one of the well-known Atlas tyre turning machines, which can deal with separate wheel-and-axle sets as well as sets mounted in the locomotive. Swarf from the milling cutters of this machine is discharged directly into a wagon outside the shop by high-pressure air, and so far, milling cutters are on hand which can deal with three tyre profiles.

The centre bay has about one-third of its length serving as a store designed to stock diesel items required not only for Stratford, but for the whole Region; and the remainder of the bay is used for wheel repairs and re-tyring, repair of bogie details, and contains also machine tools, tool store, foremen's and clerks' offices. The machine tools include tyre-boring mill, journal and wheel lathes, tyre furnace and hydraulic tyre rolls, punching and shearing machine for plating work, and welding plant. The tool stores accommodate the multitude of special tools essential for dealing with a number of designs of engines and other equipments. This bay is serviced by a 10-ton electric overhead travelling crane.

The third bay is divided throughout its length to accommodate various specialised activities. About one-third of the total length at the north-east end of the shop is now used, and is being retained, for the repair of diesel shunting locomotives, and is equipped with a 600-h.p. force-ventilated resistor type testing plant for diesel-electric shunters, and a hydraulic dynamometer testing machine for testing the power units of

TABLE I. TYPES OF LOCOMOTIVES TO BE GIVEN HEAVY REPAIRS AT STRATFORD

Type	Class	B.H.P.	Engine	Locomotive Builder	Electrical Equipment
1	Bo-Bo	800	Paxman 16YHXL	North British	G.E.C.
2	Bo-Bo	1,000	M.A.N. L12V18/21	North British	G.E.C.
2	Bo-Bo	1,160	BmA	Birmingham R. C. & W.	Crompton Parkinson E.E. Co.
2	Bo-Bo	1,100	Sulzer 6LDA28	English Electric	Brush Traction
2	A1A-A1A	1,250/1,365	Napier Deltic 9	British Railways	Brush
2	Bo-Bo	1,160	Mirrlees JVS12T	Sulzer 6LDA28	B.T.H.
4	I-Co-Co-1	2,000	English Electric	English Electric	E.E. Co.
			16S.V.T.		

diesel-mechanical shunting locomotives. This dynamometer is also to be used for testing diesel railcar power units. Provision has been made for the two enclosures necessary to house the battery-charging equipment and governor and turbo-charger repair facilities. Approximately one-quarter of the total area of this bay has been developed as a repair section for all the electrical equipment on the locomotives. This is at the extreme south-west end of the bay and the centre portion is equipped for the complete overhaul of the power units from main-line locomotives, four fabricated steel beds having been made and installed to accommodate the engines whilst they are undergoing repairs. A rotating jig is also to be provided at this point to accommodate the nine-cylinder Deltic power units. All power units are brought transversely across the workshop from the main locomotive repair bay into this No. 3 bay on a trolley hauled by an electric capstan.

Filter Cleaning and Re-oiling Plant

A filter cleaning and re-oiling plant is located in this bay and is capable of dealing with both all metal filters and composite metal and fabric filters which are in use at present. As these require to be wetted with different types of oil

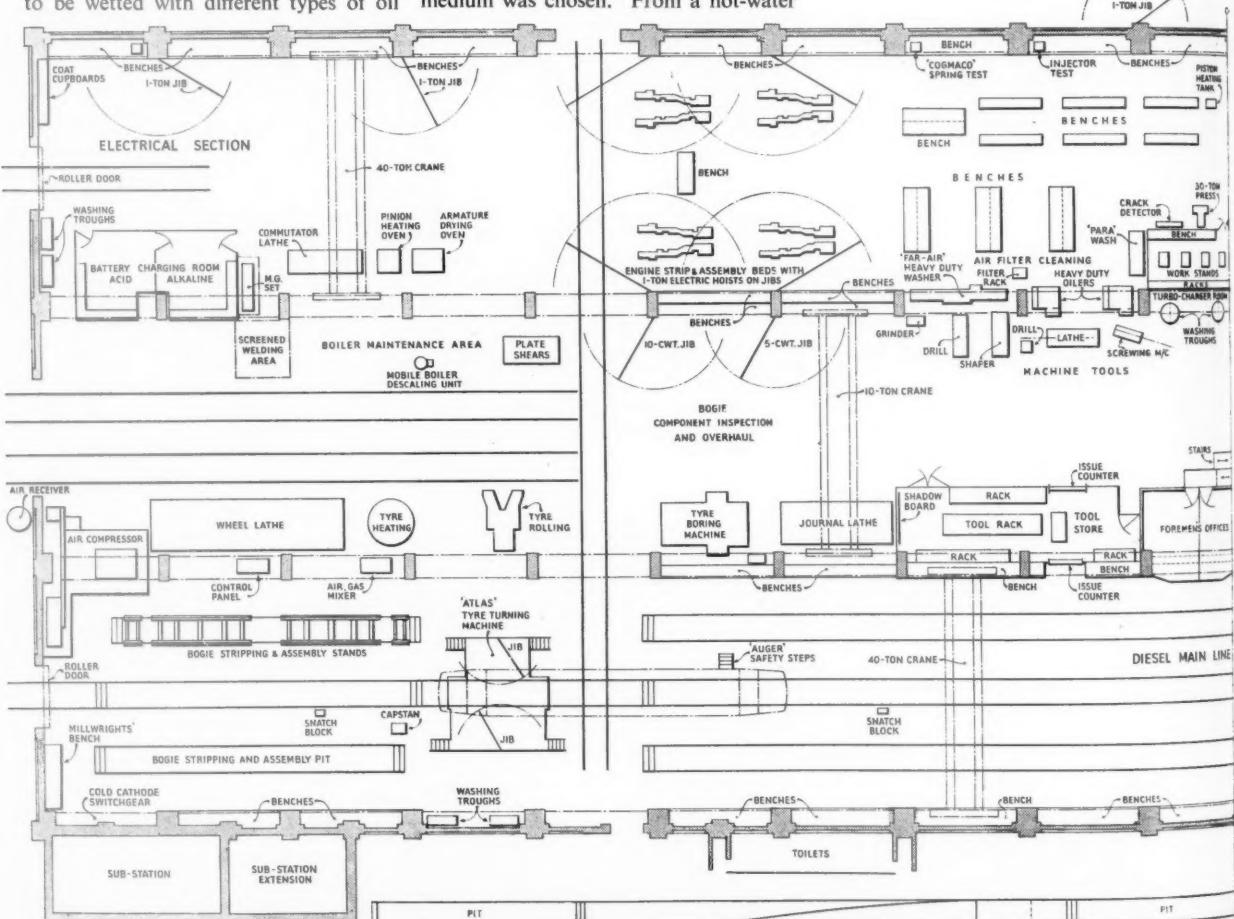
there are two dipping tanks with centrifuges to enable flow processing to be maintained. The filters are passed first through a detergent washing spray, and, after draining, go into the appropriate oil dipping tank and centrifuge. The whole of this process is arranged for flow production with minimum handling of the filters. Other facilities such as paraffin cleaning tanks, and Colosyl baths for the cleaning of locomotive details are also sited in this bay, which includes a compound for the storage of spare power units, traction motors, heating boilers, etc. This storage is effected in this No. 3 bay because of the existence of the 40-ton capacity electric overhead travelling cranes. A separate small building which existed adjacent to the main workshop accommodates the coppersmiths' repair work.

General shop lighting includes 429 cold cathode fittings installed in the three bays, all approximately 37 ft. from floor level and taking 200 watts per fitting. This general illumination is augmented by 156 pit lighting fittings each of 60 watts capacity. Additional bench lighting and special lighting for individual machine tools has been provided where necessary.

A system of heating by radiation with hot water as the heat-transmission medium was chosen. From a hot-water

generator water at high pressure and temperature is force-circulated through a system of heat radiating panels. Actual heating of the shop is through 240 standard 8 ft. by 4 ft. panels which are fixed immediately below the crane girders at a height of 18 ft. above floor level and connected in parallel. A panel consists essentially of sinuous or grid-type pipe coil to which is attached a sheet steel plate receiving heat from the pipe coil by conduction; the panels in this scheme are single-sided with the back portion well insulated. In the panel design an objective was to provide the radiation component of the heat emission at a maximum. The hot water enters the panel system at one end, passes out at the other, and returns to the hot-water generator at a reduced temperature. As the water passes through the tubing in the panels, heat is extracted and transferred by conduction to the sheet metal plates from whence it is radiated downwards upon the working area of the shop.

The hot-water generator is of the wet-back double-pass type designed for a normal load of 7,000,000 B.Th.U.s and a thermal efficiency of 80 per cent, using a heavy fuel oil of 950 sec. viscosity. The design permits of easy access for tube cleaning with adequate facilities for



Layout of west end of Stratford repair shop; heavy machine tools include Atlas tyre-turning machine in No. 1 bay

complete periodic internal examination. The water is heated under a pressure of 150 lb. per sq. in. to a temperature of 340° F., and temperature being maintained by means of thermostatic control acting on the oil burners. These burners are of the pressure-jet modulating type fed with high pressure oil and having a 2 to 1 modulation range.

Pressurisation of Water Supply

Artificial pressurisation is achieved by means of a separate high-pressure vessel containing water under a cushion of nitrogen and which is connected into the hot-water circuit. As expansion takes place due to varying temperature, surplus water flows to this vessel. A pressure switch is fitted, and if the pressure varies beyond the operational limits of the switch excess water is expelled or pumps are caused to work and put make-up water back into the circuit.

The hot flow-water is drawn from the hot-water generator and force-circulated through the system by means of centrifugal pumps. The generating unit is maintained at a constant temperature automatically, and control is effected by the automatic mixing of return and flow waters so that delivery to the heating system is at the temperature required in

accordance with the actual conditions.

Advantages claimed for this high-pressure high-temperature water system include a minimum of maintenance, as there are no moving parts outside the boiler house; higher thermal efficiency than a steam system can give; and, because of the great heat storage, a steadier operation with varying load than can be given by steam. Because the system is of closed-circuit form the same water is continually used with little make-up to replace losses through leaks. This reduces boiler scaling to a minimum. It also avoids steam trap losses and maintenance.

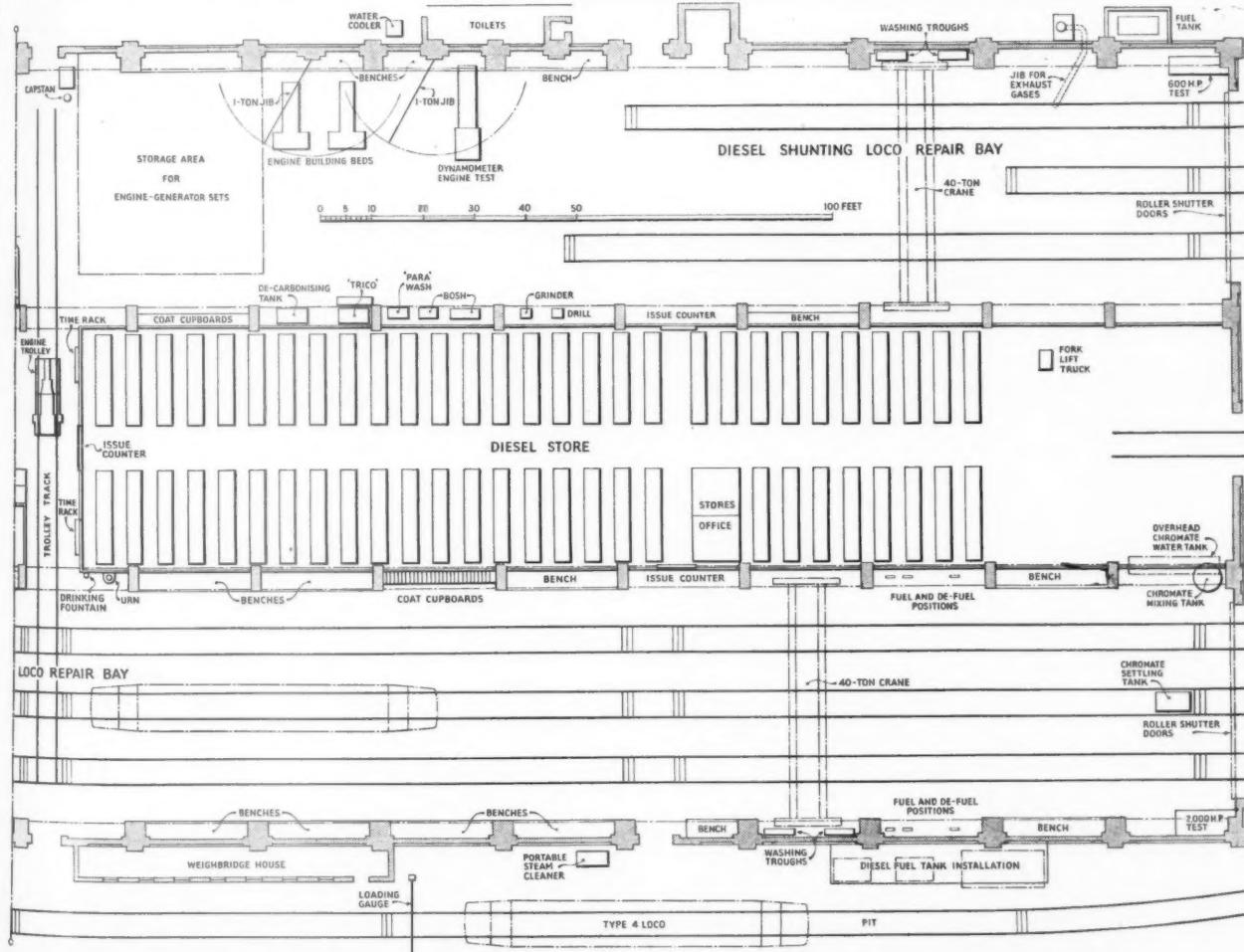
Although this installation is essentially for space heating by radiation, it has been designed to provide heat for secondary purposes. Washing facilities are provided, and to supply hot water for this purpose a number of calorifiers are sited at various points as required in the shop. These take the form of a water storage vessel in which is fitted a heating coil, and as high-pressure hot water is passed through this coil heat is transferred by conduction to the low-pressure water surrounding the coil. During the summer period, when the high-pressure heating system is closed down, electric immersion heaters fitted additionally in the calorifi-

fers are used to heat the water required for the washing facilities.

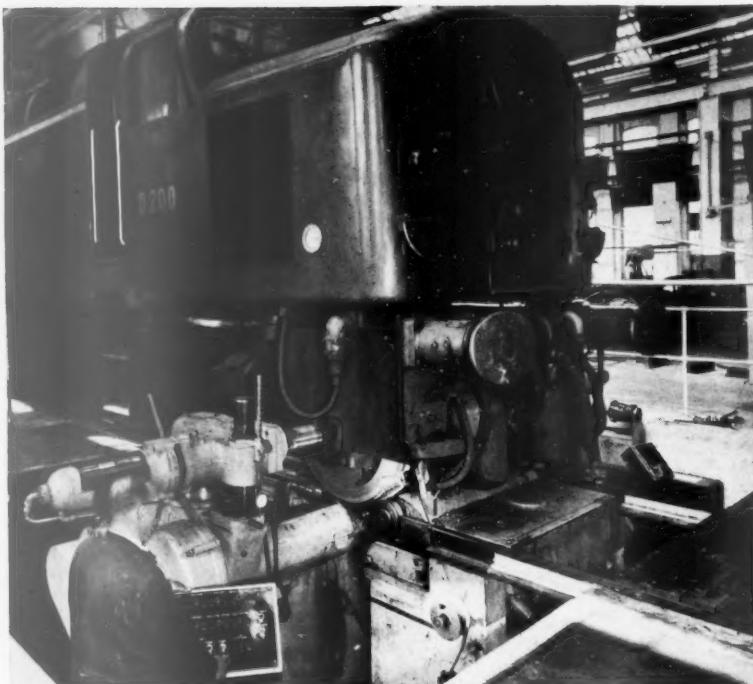
Fuel Storage

For fuel storage, two tanks each of 9,000 gal. capacity, are installed. Because of its viscosity, the oil must be pre-heated to cause it to flow more easily, and for this purpose outflow heaters are fitted. These are thermostatically controlled and dual fitted, so that when starting up from cold electric heating may be used, but when the system is working normally high-pressure hot water is used. Provision is made to accept fuel delivery by either road or rail, and a steam generator is included to provide low-pressure steam for the necessary pre-heating of oil in rail tanker wagons prior to unloading. The whole of the boiler house is arranged for automatic working with little attention required. Adequate safety measures are taken to cover any failures, mishaps, or changes in conditions from normal, and these include suitable alarms which are provided in the shop to give warning should any conditions arise from failure of any part of the equipment.

On arriving at the works for a major overhaul a locomotive first has to pass on to the outside cleaning pits, where a Bastian & Allen high-pressure hot-water



East end of shops; stores in centre bay cover requirements of diesel operation throughout Eastern Region



An English Electric 1-Co-Co-1 locomotive on the Atlas wheel-profile truing machine. Retractable rails may be closed to allow through running

detergent spraying equipment is to be used to clean the bogies and underframe. The locomotive is then to be taken into the main repair bay (No. 1) of the shop, the radiator and fuel tanks emptied, all

connections removed between the superstructure and the bogies, and the superstructure prepared for lifting. After lifting the superstructure and mounting this on stands already provided on a

suitable vacant berth in the shop, the power unit is to be removed, using the overhead crane, and transported from the main repair bay to No. 3 bay on the opposite side of the shop, where it is to be deposited on one of the fabricated steel engine repair stands provided for this purpose.

The bogies from which the superstructure has been lifted are then to be placed on stands to give convenient height for comfortable working outside the frames. Some locations for this lie at the south-west end of the bay, where there are two pits with only limited access for complete locomotives on account of the Atlas machine encroaching on the adjacent pits at one point. The bogies are to be stripped down, traction motors transported to the electrical section in bay No. 3, brake gear, spring gear, axleboxes, wheels and so on cleaned, examined and distributed in the centre bay for repair as necessary. In the meantime work is scheduled to be proceeding on the power unit, which is to be completely stripped and all parts thoroughly cleaned and decarbonised, repairs and renewals being effected as required until the completed power unit is ready for re-installation in the locomotive. If the extent of the work required is such that the repairs to the power unit cannot be completed during the period the locomotive is scheduled to stay in the shop, complete spare power units are to be available which can be fitted at once to reduce the number of days in the shop to a minimum. In the same way, if the extent of the repairs necessary to a bogie is excessive, so that undue delay seems



Detail repair bay No 3 with diesel shunters under repair. Lister-Blackstone 375 b.h.p. engine in foreground



Steel racking in diesel component store in centre bay. Above the bins on the right are the radiant heater panels and overhead the cathode lighting

likely to be involved, complete spare bogies of each type are to be available which can be fitted to the locomotive, leaving the repairs to the original bogies to be completed as quickly as possible after the locomotive has left the shop.

On completion of the repairs to the power unit and the repairs to the bogies, these components are to be returned to the locomotive in the main locomotive repair bay, the power unit going to the superstructure, still on its stands, and this should then be ready for wheeling. The repaired bogies are to be located on an appropriate vacant berth in the main repair bay, and the superstructure lifted from its stand and replaced on the two waiting bogies. All necessary connections are then to be re-made, radiator and fuel and lubricating oil tanks re-filled, oil levels checked, all electrical connections checked and the locomotive is then to be placed on a berth immediately outside the shop at the south-east end for the testing of the power unit. On satisfactory completion of testing, the locomotive will be weighed and returned to traffic.

The above description deals with the carrying out of a full overhaul, but this stage has not yet been reached in the operation of the Eastern Region main-line diesel locomotives. It is not the intention that this will be the procedure each time a locomotive is brought to Stratford for normal heavy maintenance, but to work to a cycle of lesser repairs in progressive stages with a minimum of dismantling until the point is reached when complete overhaul is necessary.

Engine Overhaul

Engine overhaul is planned to be carried out in approximately a four-stage cycle based on annual shopping. "Annual" is a convenient term, but in this sense is not necessarily twelve months but may be multiplied by factor depending upon mileage run and hours in service. It is considered that this should be settled so that tyre re-profiling coincides with engine and other examinations and repairs to obtain maximum service

with minimum immobility for shopping. The multiplying factors at present in view range from 0.75 in the case of the 2,000 b.h.p. Type 4 English Electric locomotives to 2.5 for the Type 1 N.B.L./Paxman locomotives. This corresponds with mileages between 60,000 and 100,000, which so far indicates tyre tread wear of 0.185 in., at which it is considered tyre re-profiling will be profitable to maintain good riding and reduce wear and tear of bogies. So far flange wear has been small and tread wear appears to be the limiting factor.

The planned cycle of repair is:

Stage 1. Cylinder heads, valves, injectors, fuel pumps, turbo chargers, check examination of piston rings, connecting rod and main bearings. Examination of brush gear, commutators, control and auxiliary equipment

Stage 2. As above, but with all pistons and connecting rods

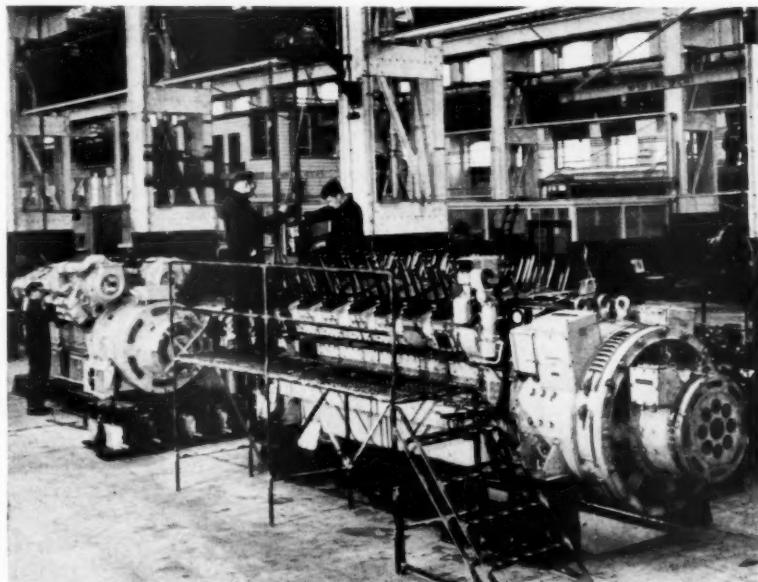
Stage 3. Ditto

Stage 4. Major overhaul

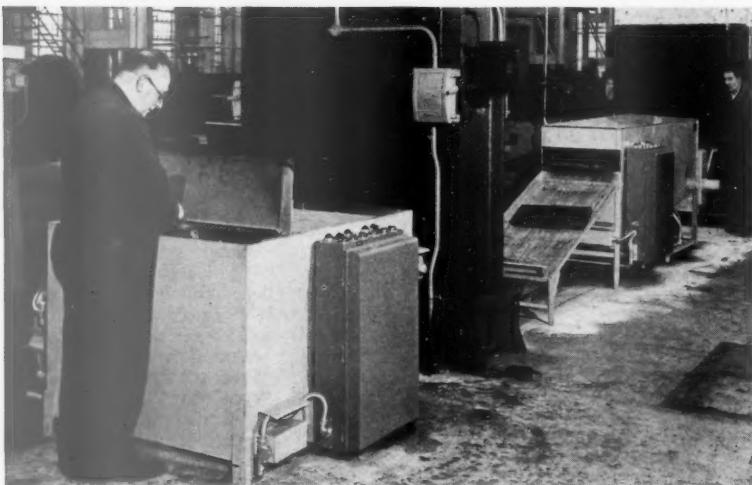
A considerable amount of equipment has been installed in the shop to deal with operations forming part of diesel locomotive heavy repairs, and details of the more important items are given below.

Testing Plants.—For the load testing of main-line diesel-electric locomotives a B.T.H. 2,000 h.p. force-ventilated Type ZP load resistor is located in the main-line locomotive repair bay; and for the testing of repaired diesel-electric shunting locomotive there is a B.T.H. 600 h.p. Type R.P. load resistor of the force-ventilated type. For load testing the power units from diesel mechanical shunting locomotives and railcars a type DPY5 Heenan & Froude hydraulic dynamometer complete with starting and running-in-gear, and fuel-flow weighing equipment, has been provided.

Wheel-and-Axle Machinery.—An Atlas standard wheel-profile truing machine has been installed in the main locomotive repair bay, and this machine is served by an electrically-operated capstan for the relative positioning of locomotives for tyre turning. One complete head from an existing duplex horizontal tyre boring machine is to be transferred to the wheel-repair section of the new shop; and a Selas floor-type No. 152/2 gas-fired tyre-heating plant, complete with automatic gas and air proportioning and mixing machine, suitable for heating tyres of sizes from 3 ft. to 4 ft. 6 in. dia. on the tread has been installed. There is also a size 2 Gibson ring rolling machine supplied by B. & S. Massey Ltd., for rolling the Gibson ring on tyres, and the machine is capable of exerting a maximum pressure of 25 tons on the roll. A Craven Bros. 5 ft. locomotive wheel lathe is to be sited in the wheel-repair section of



Piston withdrawal with jib mounted electric hoist on engine repair bed; English Electric 2,000 b.h.p. engine in foreground and Paxman 800 b.h.p. engine to left



Cleaning and re-oiling of panel type air filters in the Intermitt/Farr-Air machine: in the foreground is the centrifuge unit for surplus oil removal

No. 2 bay. This machine is to be suitable for turning simultaneously the treads, flanges, and inside faces of wheel sets of diesel, diesel-electric, and any other locomotives having wheel diameters varying from 33 in. to 54 in. on the tread. Finally, a No. 1 Atlas locomotive axle journal re-turning and burnishing lathe has been installed in the wheel repair section of No. 2 bay.

Miscellaneous.—Panel-type air filters are automatically cleaned by passing through an Intermitt/Farr-Air washing machine and after a period of draining, are then re-oiled and centrifuged in the second stage of the same machine group. For dealing with the heavy-duty "X" size fuel pumps, a special heavy-duty Hartridge fuel pump test bench has been provided, but this machine is installed in the fuel pump and injector servicing room, which is at present not sited within the new diesel repair shop. A Metro-Vick universal magnetic crack detector of Metroflux Type S is now installed, complete with accessories and is capable of crack-detecting crankshafts

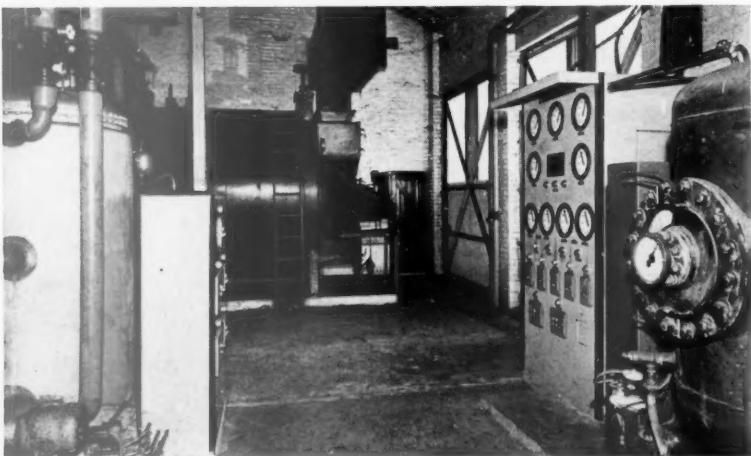
from the largest power units coming into the Stratford repair schedule.

For descaling the steam train-heating generators of main-line diesel locomotives, a Merrill portable descaling unit has been provided, and for cleaning locomotive bogies and underframes a model 175 Speedyjet portable electric steam cleaning machine of Bastian & Allen make has been installed. For the cleaning of stripped engine components, degreasing and cleaning equipments have been provided; they include a type V.4 trichlorethylene degreasing tank of I.C.I. make, and an electrically-operated paraffin pressure cleaning tank of the Mann Egerton type supplied by Buck & Hickman. A decarbonising bath has also been provided.

Other small items of equipment include a Conveyancer fork-lift truck of 5,000 lb. at 16 in. capacity, for use in the diesel stores; a 30-ton Mills self-contained Oilantic hydraulic press; a one-ton Vaughan jib crane with electrically-operated hoist block, for each of the four



Rebuilding of traction motors for diesel-electric locomotives in a corner of the electrical equipment repair section



Boiler house for high pressure hot water heating system. On the right is the nitrogen pressurising unit and automatic control panel

power-unit repair beds in No. 3 bay; and a Crompton Parkinson 50-kW motor-generator set to provide d.c. supply for the light running of traction motors and other constituents.

Fuelling Installation.—Two fuelling and de-fuelling points are to be installed at the north-east end of No. 1 bay, adjacent to Nos. 1 and 3 roads, and these are to provide facilities for emptying the fuel tanks and the power unit sumps of locomotives prior to repairs commencing, and for re-filling these services of the locomotive when repairs have been completed. Fuel and lubricating-oil storage tanks of 3,000 gal. and 750 gal. respectively are to be sited outside the shop; and Zwicky filters are to be installed in the lines. Suitable pumping equipment by the Saunders Valve Co. Ltd., and by Mirrlees, and Bayham tank gauges and Tyler metering equipment are being provided for distribution of the oils to and from the fuelling points.

RAILWAY NEWS SECTION

PERSONAL

Mr. B. Seymour, Commercial Superintendent, London, Tilbury & Southend Line, Eastern Region, British Railways, has been appointed Goods Commercial Officer, Divisional Traffic Manager's Office, London, Western Region.

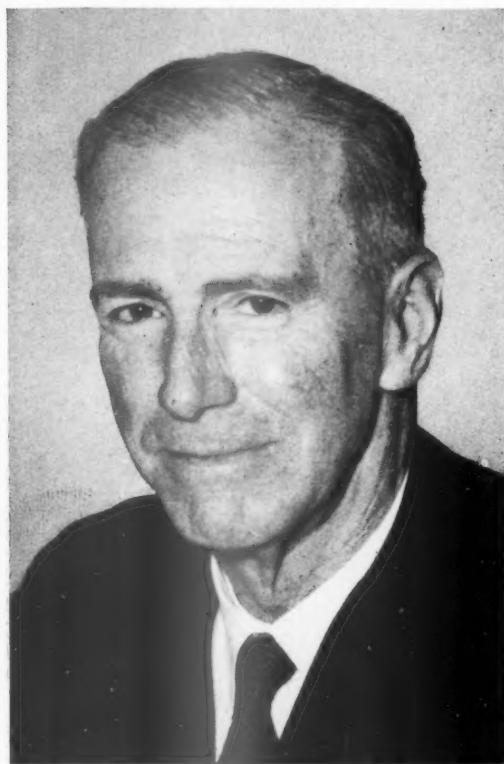
We regret to record the death on March 19, at the age of 68, of Mr. W. H. Armstrong, A.M.Inst.T., Chief Mechanical Engineer

and the first officer trained on the New South Wales Railways to fill it. Mr. Armstrong retired from this position in June, 1956. He was a Member of the Institution of Engineers (Australia).

Mr. G. E. Robertson has been appointed Manager, Sales & Contracts, Meter, Relay & Instrument Division, and Mr. P. G. Bevis has been appointed Manager, Sales & Contracts, Relay Department, of the English Electric Co. Ltd.

Mr. C. W. Clarke has been appointed Home Sales Manager, Surform Division, Simmonds Aerocessories Limited.

Mr. C. C. Gates, who, as recorded in our June 5 issue, has been appointed Comptroller of Stores, Western Australian Government Railways, joined the Railway Department as a clerical cadet, in 1916, in the District Traffic Superintendent's Office, Kalgoorlie. He was successively a booking clerk, telegraphist, goods clerk, and station-



The Late Mr. W. H. Armstrong
Chief Mechanical Engineer, New South
Wales Government Railways, 1951-56



Mr. C. C. Gates
Appointed Comptroller of Stores, Western Australian
Government Railways

New South Wales Government Railways, 1951-56. Mr. Armstrong began his engineering career in 1908 at the Eveleigh Locomotive Workshops, New South Wales Railways, as an apprentice fitter. He obtained locomotive running experience at Clyde and Eveleigh Sheds. Later he became Assistant-in-Charge, successively, at Bathurst and Eveleigh Locomotive Running Depots. Positions later occupied by Mr. Armstrong were: Officer in Charge of Suggestions from the Staff; Member of the Suggestions, Inventions & Economies Board; Assistant Superintendent of Running; Assistant Engineer, and Engineer, on the personal staff of the Chief Mechanical Engineer; Divisional Locomotive Superintendent, Southern Division, and Assistant Locomotive Superintendent, Chief Mechanical Engineer's Personal Staff. On January 1, 1936, Mr. Armstrong was appointed Assistant Chief Mechanical Engineer, a position which he held, with periods acting as Chief Mechanical Engineer, until January 1, 1951, when he was appointed Chief Mechanical Engineer. He was the first Australian-born occupant of this position,

Mr. T. Kershaw has been appointed Representative, Yorkshire, Lancashire & Cheshire, for Amar Tool & Gauge Co. Ltd.

Mr. G. B. R. Feilden will be leaving the Board of Ruston & Hornsby Limited later in the year. He will become managing director of an engineering company.

Mr. A. J. Peech has been appointed Deputy Chairman of the United Steel Companies Limited. He will continue in the office of General Managing Director.

Mr. E. J. Nicholl, Joint Managing Director, Dowty Equipment Limited, has been appointed a director of British Messier Limited.

Mr. F. Rogers, Head of the Installation Equipment Department, British Electrical & Allied Manufacturers' Association has retired. He will continue in B.E.A.M.A., in a part-time capacity, as Continental Liaison Officer for Domestic Appliances.

master. In 1941 he was appointed a train controller in the Central Transport Office, later transferring to the District Office, Northam, returning to the C.T.O. in 1946. He was made a special research officer to the Chief Traffic Manager in July, 1948, and, in 1949, was appointed Superintendent of Operating Research. He was the senior Traffic Branch Officer in a delegation to the U.K., in 1950, to study railways, and, after his return he was appointed Assistant Chief Traffic Manager (Research & Investigation). In 1958, he was appointed Chairman of the Railway Planning Board, the appointment he now relinquishes. Mr. Gates was closely concerned with the editing and production of the revised railway rule book, and was responsible for the complete revision of the current Engine Load Tables. He took an active part as a traffic representative in the planning and introduction of centralised Traffic Control on Australian railways and, more recently, he was in charge of the planning of a development area for major railway facilities in the City of Perth Metropolitan Area.

June 26-August 14, 1959

Mr. R. J. Hill, Assistant (Passenger & Parcels) to the Commercial Officer, Paddington, Western Region, British Railways, has been appointed Passenger Commercial Officer, Divisional Traffic Manager's Office, London.

Mr. G. W. Quick Smith, LL.B., F.C.I.S., M.Inst.T., Member of the Board of Management, British Road Services, who, as recorded in our May 29 issue, has been appointed a Member of the General Staff, British Transport Commission, will be Adviser (Special Projects) at the Commission's headquarters. Mr. Quick Smith

1948. He has attended various sessions of the International Labour Conference at Geneva and twice was Chairman of the Employers' Group of the Inland Transport Committee, representing 26 countries. He acted as *rapporteur* to the Highway Transport Committee of the International Chamber of Commerce and assisted in the formation of the International Road Union. He presented the Spurrier Memorial Lecture to the Institute of Transport in 1954, and has served on the Council of that body. He is a Freeman of the City of London, a Liveryman and a Member of the Court of Assistants of the Worshipful Company of Carmen. Since 1935,

Mr. S. A. Hiscock has joined the staff of the Lead Development Association from Enfield Cables Limited. He will be associated principally with developments in the use of lead in the cable industry.

Mr. T. G. Gibb, Divisional Manager, North Eastern Division, Leeds, British Road Services, who, as recorded in our June 12 issue, has been appointed General Manager, British Road Services, is a grandson of the late Sir George Gibb, General Manager, 1891-1906, of the former North Eastern Railway. Mr. Gibb was born in 1915, and educated at St. Edward's School



Mr. G. W. Quick Smith
Appointed Adviser (Special Projects),
British Transport Commission



Mr. T. G. Gibb
Appointed General Manager
British Road Services

took his law degree at London University, and was called to the Bar by Inner Temple. After a period in shipping, he became associated with the road haulage industry, in 1935, when he was appointed Assistant Secretary of the London & Home Counties Haulage Contractors' Association and of the National Road Transport Employers' Federation. He held numerous positions in the industry, was closely associated with the development of wage negotiating machinery and conditions of service. He took a notable part in the wartime organisation of meat transport. He was closely concerned with the amalgamation of the various road transport associations, and, in 1945, was appointed first Secretary of the National Road Transport Federation, with its three constituent associations, the R.H.A., the T.R.T.A. and the P.V.O.A. Mr. Quick Smith was appointed a Member of the Board of Management, British Road Services, with special responsibilities for Staff and Administration in 1953, upon the abolition of the Road Haulage Executive, to which he had acted as Secretary & Legal Adviser since its inception, in

he has been associated with the benevolent activities of the industry.

Mr. J. F. Robertson, a director and Group Treasurer of the Hawker Siddeley group, has been appointed to the board of High Duty Alloys Limited. Mr. I. C. Dick has also joined the board of High Duty Alloys Limited, and continues as Secretary.

Mr. W. Edgar Hale has resigned as Chairman & Director of Hale & Hale (Tipton) Limited, due to ill-health. He has been nominated President of the company, subject to confirmation by the shareholders. Mr. R. C. Leppington, Vice-Chairman & Managing Director of the company and subsidiaries relinquished this appointment, to become Chairman of the company and subsidiaries. Mr. J. A. Wyld is appointed Managing Director of the company. Mr. William Clarkson becomes Vice-Chairman of the company and subsidiaries. Mr. Frank Coe is appointed Managing Director of the subsidiaries, retaining the position of Director & Secretary.

Oxford. He joined the London North Eastern Railway as a traffic apprentice, in 1933, and later held various positions in the operating departments at Whitemoor and Norwich. In 1939 he was mobilised with the Supplementary Reserve, and served in the Transportation Division, Royal Engineers. In 1941 he was seconded to the Transport Department, Ministry of Supply as Assistant to the Controller of Rail Transport, at Headquarters, from 1941-42. He later became Transport Officer at Leeds ; Transport Officer, West Scotland Area, and Regional Transport Officer for the Yorkshire Region. In 1945 he entered the road haulage industry, when he joined Currie & Co. (Newcastle) Ltd., becoming their General Manager & Director, in 1947. Upon nationalisation, he joined British Road Services, becoming Divisional Traffic Officer, Western Division, Cardiff, in 1949; Deputy Chief Traffic Officer, Headquarters, in 1952 ; Deputy Chief Officer Organisation, Headquarters, in 1954 ; and Divisional Manager, North Eastern Division, British Road Services, Leeds, in 1956.

*Mr. H. Bullough*Appointed District Commercial Manager,
Derby, L.M. Region.

Mr. H. Bullough, District Commercial Superintendent, Leicester, London Midland Region, British Railways, who, as recorded in our May 22 issue, has been appointed District Commercial Manager at Derby, London Midland Region, began his railway career on the former Lancashire & Yorkshire Railway at Manchester, in 1915. After experience at Bury and Castleton, Mr. Bullough was transferred to the General Manager's Parliamentary & Private Siding Section, on the amalgamation of the L.N.W. and L. & Y. Railways. In 1925, Mr. Bullough moved to Euston and served in the Private Sidings, Development, canvassing and Livestock Sections of the Commercial Department, and became an investigator in the Commercial Research Section in 1936. He was appointed personal clerk to the Chief Commercial Manager, in 1942, and, two years later, became Assistant (Commercial Research) to that officer. In May, 1945, Mr. Bullough went to Leeds as Assistant District Goods Manager and, in November of the following year, moved to Stoke-on-Trent, as District Goods & Passenger Manager, a position later re-designated District Commercial Superintendent. In 1954 he was appointed District Commercial Superintendent at Leicester, the position he now vacates.

Mr. G. S. Parish has been appointed Sales Manager, London Area, including Home and Eastern counties, David Brown Corporation (Sales) Limited.

Mr. T. R. Earnshaw, recently appointed a director of Ferodo Limited, has assumed full responsibility for export sales on the retirement of Mr. F. L. Harrap, Export Sales Director.

Mr. J. D. Millner, Manager, North London Branch, Ferodo Limited, has been appointed the company's Manager in the Irish Republic, with headquarters in Dublin. He will be succeeded, as Manager, North London, by Mr. W. H. Wyse, whose place as Sheffield Manager will be filled by Mr. A. Chatterton.

As a result of recent changes in the cabinet of Dr. Arturo Frondizi, President of Argentina, Mr. Alberto R. Costantini, has replaced Dr. Alberto Lopez Abuin as Transport Secretary. Mr. Victor Santiago Mangonnet has become Under-Secretary in place of Dr. Ricardo J. Agostini.

We regret to record the following deaths:

May 5, Mr. Evan Evans (77), Operating Manager (Railways), London Passenger Transport Board, 1938-46.

June 3, Colonel C. J. H. Watson (80), formerly Stores Superintendent of the London & South Western Railway, and later of the Southern Railway.

June 6, Mr. Charles Beastall (80), Assistant District Engineer, Derby, London Midland & Scottish Railway, 1941-45.

June 7, Mr. George A. Walker (80), Chairman, Canadian Pacific Railway, 1948-55.

June 23, Mr. E. W. Stewart (78), Commercial Assistant to the Continental Traffic Manager, London & North Eastern Railway, and subsequently of the North Eastern Region, British Railways, 1946-49.

June 25, Mr. A. E. Wildey (79), Public Relations Officer, Port of London Authority, 1929-39.

June 27, Mr. George A. Hicks (80), Chief Engineer, Burma Railways, 1921-34.

July 1, Sir Ronald Matthews (74), Chairman, London & North Eastern Railway Company, 1938-47.

July 2, Lord Weir of Eastwood (82), Hon. President of G. & J. Weir Limited, and Chairman, 1929-31, of the Committee on Railway Electrification.

July 6, Mr. F. A. de la Nougerede (69), formerly of the Bengal & Assam Railway, and later Controller of Stores, Calcutta, Eastern Bengal Railway.

July 14, Mr. George Alderson (81), formerly of the Nigerian Railways.

July 14, Sir Frederick Pickworth (69), Chairman of English Electric Corporation Limited and subsidiary companies, and also of Taylor Bros. & Co. Ltd.; Director of Vickers Limited and of other companies.

July 20, Mr. E. J. Jordan (70), formerly District Engineer, Barking, British Insulated Callender's Construction Co. Ltd.

July 25, Mr. F. West (65), Assistant Chief Purchasing Agent, London, Sudan Government.

July 26, Mr. E. J. Lawson Clark (58), Regional Manager, Northern Ireland, Dunlop Rubber Co. Ltd.

August 2, Sir Maurice Brayshay (76), Agent Bombay, Baroda & Central India Railway, 1932-38, and former Member of the Indian Railway Board.

Mr. L. S. Carstairs, a director of Barrow Haematite Steel Co. Ltd., has been elected Chairman.

Mr. F. D. Rose, Senior Assistant to the Public Relations Officer, London Transport Executive, has been appointed Public Relations Officer. He succeeds the late Mr. W. R. Robertson.

Mr. C. E. Mahmud, Chief Traffic Manager, Eastern Bengal Railway, Pakistan, has been appointed Director of Traffic, Ministry of Railways & Communications, Railway Division, Karachi.

Mr. F. B. Harvey, General Traffic Manager, South Australian Railways, has retired. He has been succeeded by Mr. T. S. Rogers, Assistant to the General Traffic Manager.

Mr. C. O. Farrer has been appointed Plant Development Engineer, W. T. Henley's Telegraph Works Co. Ltd., in succession to Mr. F. T. Griffiths. Mr. A. R. Hutchinson succeeds Mr. Farrer as Works Engineer, Birtley.

Sir James Reid Young has retired from the board of Vickers Limited. Mr. W. D. Opher, a director of Vickers-Armstrongs Limited and of certain other companies in the group, and Managing Director of Vickers-Armstrongs (Engineers) Limited, has been appointed an additional director.

*Mr. J. H. Hambidge*

Appointed District Operating Superintendent, Birmingham (New Street) L.M. Region.

Mr. J. H. Hambidge, District Operating Superintendent, Birmingham Midland, who, as recorded in our May 22 issue, has been appointed District Operating Superintendent, Birmingham (New Street), London Midland Region, will be responsible for both Western and Midland Districts of that region. Mr. Hambidge began his railway career as a control train operator at Ambergate in 1924. After experience in various capacities at Derby, Euston, Crewe, Nottingham, Burton and Peterborough, he was, in 1946, appointed Assistant to the District Operating Manager, Derby. In 1949, went to Glasgow, as Chief Controller & Chief Trains Clerk. In 1951, he became Assistant District Operating Superintendent, Leicester, and was promoted to be District Operating Superintendent, Stoke-on-Trent, in 1954. He moved to Birmingham in June, 1956, as District Operating Superintendent, Birmingham Midland. Mr. Hambidge represented Great Britain at the Olympic Games, in 1928, in the 200 metres flat race. He was, that year, the L.M.S.R. 100 yards and 220 yards champion, and has represented British Railways in international events.

Mr. F. McPherson and Mr. J. K. W. MacVicar have been appointed Joint Managing Directors of Thermotank Limited. The former Managing Director, Mr. I. M. Stewart, remains Chairman of Thermo Tank Limited, but has resigned the duties of Managing Director in view of his appointment as Chairman of Hall-Thermotank Limited, the amalgamated company which it is proposed to form with J. and E. Hall Limited, refrigerating engineers.

Mr. C. C. Bates, Technical Director, Welding Supervision Limited, has joined the board of Cathodic Corrosion Limited. Mr. J. A. K. Stobie has been appointed Chief Engineer, Welding Supervision Limited.

Mr. J. Busfield, Secretary & Chief Accountant, Crofts Engineers (Holdings) Limited, and Crofts (Engineers) Limited, has been appointed a director of Crofts Engineers (Holdings) Limited, Crofts (Engineers) Limited, and J. Parkinson & Son (Shipley) Limited. Mr. M. T. J. Goff, Joint Managing Director of Crofts (Engineers) Limited, and a director of Crofts Engineers (Holdings) Limited, has also been appointed a director of J. Parkinson & Son (Shipley) Limited.

NEW EQUIPMENT AND PROCESSES

Stud Welder

NEW stud welding equipment is available for use with standard arc welding transformers and mild steel studs of $\frac{1}{16}$ in. to $\frac{1}{2}$ in. dia.

Controls are contained in a single unit which, when installed on the primary side of the welding transformer, can be left *in situ* and used for arc or stud welding merely by operation of a selector switch. The pistol-type hand tool, designed for use with Philips stud welding cartridges, weighs only $2\frac{1}{2}$ lb. and has an overall length of $8\frac{1}{2}$ in. when welding 1 in. studs. It is fitted with a new type of locating foot ensuring speedy and precise positioning of studs vertical to the work piece. Simplicity of equipment reduces servicing to a minimum.

Housed in a robust mild steel case measuring 12 in. x 12 in. x 8 in., weighing only 32 lb., and fitted with carrying handle, the control unit operates from 200/240V. or 380/440V. A.C. 50-cycle mains supply. A safety fuse is fitted.

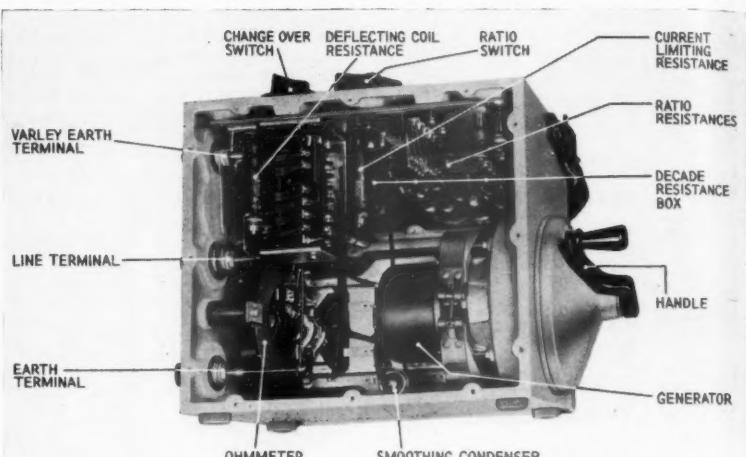
The standard hand-tool is supplied with interchangeable collets of $\frac{1}{16}$ in., $\frac{1}{8}$ in., $\frac{5}{16}$ in., $\frac{1}{4}$ in. and $\frac{3}{8}$ in. diameters and will accept studs up to $3\frac{1}{2}$ in. long for $\frac{1}{4}$ in. dia. and $3\frac{1}{2}$ in. long for $\frac{3}{8}$ in. dia. Maximum stud length for other diameters falls between these dimensions. For studs of greater length, a longer leg is available. The equipment also will weld cheese-headed screws down to 6 B.A. The body is of insulated aluminium-alloy casting; trigger-voltage is 12V. A locking screw adjustment controls spring pressures.

Price is £104 10s.; initial delivery is from four to six weeks. All possible applications will be investigated and non-standard adaptors are supplied for use with the equipment.

Further details can be obtained from the Stud Welding Applications Company, Roads Estate, 301, Richmond Road, Twickenham, Middlesex.

Electric Cross Grinder

THE X-61-E is a new portable electric cross grinder or slotter which can be manoeuvred and operated by one man. It is for use with welding generator sets for the electric welding of rail ends. Although it weighs only 195 lb. its rigid construction and



balanced design ensure smooth operation with little vibration and long service life.

Peripheral framework forms a protective cage that permits the operator to roll the entire unit over and off the track quickly and easily and without damage to precision work parts. Overall dimensions are 24 in. x 21 in. x 33 in. Equipment includes $1\frac{1}{2}$ -h.p. 220/440 electric motor and starter box. Grinding wheels 8 in. in dia. with $\frac{1}{2}$ -in. bore, are available in various thicknesses.

Further information can be obtained from the Railway Track-Work Company, 3207, Kensington Avenue, Philadelphia 34, Pa., U.S.A.

Educational Models

ARANGE of industrial instruments has been adapted to enable the operational functions and details of construction and maintenance to be studied by students unacquainted with the industrial applications of academic and practical knowledge imparted by technical colleges. Mechanisms are exactly similar to those supplied for industrial applications, but the provision of transparent windows and other facilities make the units suitable for training purposes. Some of the instruments—for example, those in the "Megger" range of insulation testers

—are recognised as standard equipment.

The following three main types are available: model servo mechanism; process controller and simulator; "Megger" testing sets (illustrated). Instruction booklets and wall charts are provided with these sets.

A series of descriptive leaflets is available free on request from Evershed and Vignoles Limited, Chiswick, London, W.4, from which company the units may be obtained.

Marking System

THE Magic Marker is designed for marking difficult surfaces such as metal, rubber, canvas, wood, and plastic. It dries instantly and is smudge- and waterproof. It does not fade when exposed to rain, frost or sun. Capillary action ensures constant and uniform ink-flow, even in vertical or overhead marking.

Cost for the "Jumbo" size (claimed to write for three miles) is 12s. (refill 6s. 6d.). The product is also supplied in the following sizes:

Shipping Kit (for packing room use), priced from 54s. This contains a brushpen which can be clipped in the pocket or kept ready for instant use in a penstand (supplied in the kit) which fills the pen automatically.

Stencil Set (for box or crate addressing or identification), price 45s. (excluding ink).

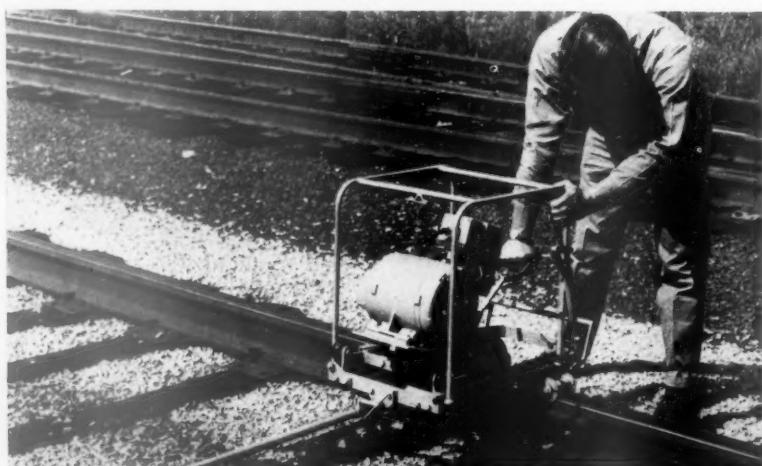
Further details can be obtained from Speedy Products Limited, 83, Coppers Cope Road, Beckenham.

Gold Glass for Diesel

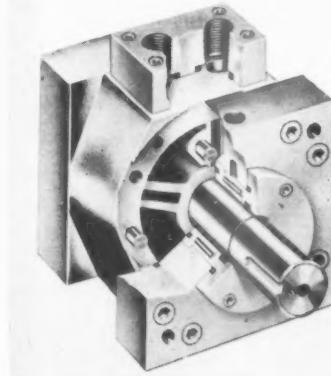
NEW diesel locomotives for British Railways are to be equipped with gold-coated glass windscreens that will prevent the formation of ice. Present orders cover 500 electric and diesel-electric locomotives.

Panels have been in service and on trial for some time. In addition, the manufacturer has produced windscreens for the Comet IV and other aircraft, for ships' bridge-windows and for dumper-tippers to be used in the Arctic Circle.

Use of gold-film glass, which consists of a transparent gold-film deposit on the glass during manufacture in a vacuum chamber to a thickness of two ten-millions of an inch, will eliminate the need to install complicated hot-air ducting in locomotive cabins.



Further information can be obtained from the manufacturer, the Triplex Safety Glass Co. Ltd., King's Norton, Birmingham.



Torque Actuators

ROTAC units (rotary torque actuators) of the Ex-Cell-O Corporation of America are now being manufactured in Britain and will be sold in Europe and the United Kingdom.

At present, one series—the RN—is available. This includes single- and double-vane units fitted with needle roller bearings. The range provides torque ratings from 1,500 in./lb. to 92,000 in./lb. at 1,000 lb. per sq. in.

The units provide semi-rotary movement hydraulically controlled. The single-vane models allow movement through an arc of 280 deg. The double-vane models develop much greater torque for the same pressure, but the arc of movement is restricted to 100 deg.

The units are of particular use where high power has to be provided in a small space. For automation equipment and machine tools they are used in clamping, indexing, feeding, locating, transferring, turning over, and for operating valves. Applications in the material handling field include crane booms and car-tippers.

The range manufactured in this country will be extended. Meanwhile, to meet customers' special requirements, the British

manufacturer is willing to import any unit not at present manufactured in Britain.

Further details can be obtained from Keelavite Hydraulics Limited, Allesley, Warwickshire.

New Range of Shears

A NEW range of $\frac{1}{2}$ -in. shears is available, the first model of which, the Keetona 8 in. by $\frac{1}{2}$ in., illustrates the features of the whole range.

Constructed of fabricated steel, the shears have instantaneous clutch engagement; toggle-action mechanical or hydraulically-operated hold-down; easily changed blades, and efficient one-point lubrication. Box construction is claimed to minimise deflection and to ensure rigidity, smooth operation, and a high degree of accuracy.

The action of the cutting beam is inclined at 2 deg. to the vertical, and gives the same effect as two-edge bevelled blades. The back gauge moves away from the lower blade during cutting to allow sheared material to fall free.

Further details can be obtained from Keeton, Sons & Co. Ltd., Keetona Works, Greenland Road, Sheffield 9. Enquiries from South Africa, Canada, and India should be addressed respectively to: National Engineering (Pty.) Ltd., Simmonds Street and Village Road, Selby, Johannesburg; the National Trading Co. Ltd., 120, Voortrekker Road, Salt River, Capetown; the McCormick Machinery Company, 163, Murray Street, Montreal 3, Quebec; Gilbert C. Storey Machinery Limited, 1220, Dundas Street East, Toronto 8, and Machine Tools (India) Private Limited, Wilmet House, Russell Street, Calcutta 16.

Temporary Load-Bearing Structures

GUYREX steel trussing comprises light pin-jointed structural members for the quick assembly and dismantling of temporary structures. Members are of box or H section and designed for a working load of 5 tons (ultimate 15 tons) in tension or compression. Reinforced tongues interleave as clevises for connection by single 31/32 in. dia. high tensile steel bolts in 1-in. dia. holes. Lengths are 3-, 4-, and 5-ft. (special



lengths can be supplied) to enable several sizes and types of truss to be assembled. Trusses are connected laterally at different distances by simple cross-bracing. Members weigh only 6 lb. to the ft., and are sherrardised, so that the equipment can be conveyed to places difficult of access and stored in adverse conditions.

Accessories including bearer angles, jacks, bogies, castors, and runway joists allow a wide range of temporary load-bearing structures to be constructed.

Further details can be obtained from the manufacturer, Guyrex Equipment Limited, 25, Craven Street, London, W.C.2.

New Type of Wheel

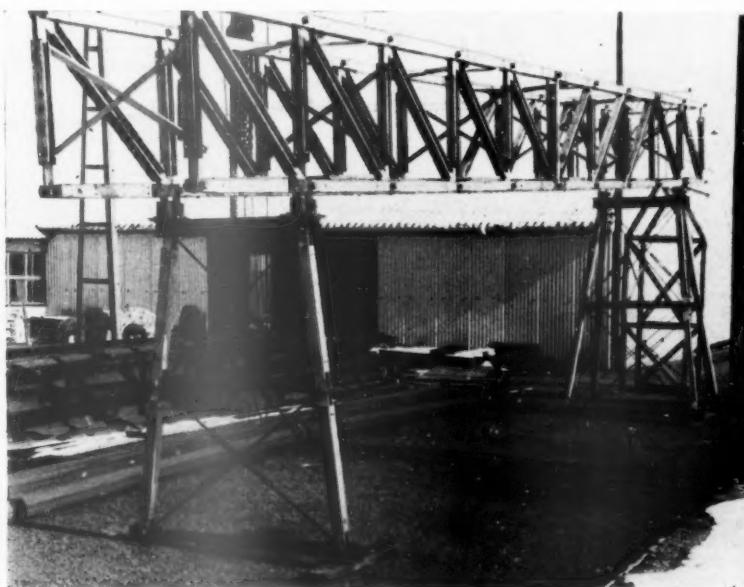
A NEW type of wheel has been developed for commercial vehicles. No flange is required on the disc, which is arc-welded to the rim and formed from a square link. Only four internal and external locating welds are necessary. This construction makes possible a saving in weight of up to 15 per cent. Greater than usual clearance between brake drum and wheel rim helps brake cooling. Developed by Vauxhall Motors Limited in conjunction with Joseph Sankey Limited, the wheel is fitted on Vauxhall Bedford models using 20 in. wheels. Five types of two- and three-piece patterns are in use, with variations of rim size and offset. Cost is the same as for riveted wheels. A substantially longer life is claimed.

Further details can be obtained from Vauxhall Motors Limited, Luton, Beds.

Gland Packings

SI X additions to the Crane range of gland packings include five to the CF2 range, in which the basic material is Polytetrafluoroethylene (P.T.F.E.). Three of these are impregnated during manufacture with P.T.F.E. dispersion coatings. The sixth new packing, in the Crancap series, has been developed for applications involving the handling at high temperatures of steam, air, water, mineral oils, petroleum by-products, and gases.

Further details can be obtained from the manufacturer, Crane Packing Limited, 157, Victoria Street, London, S.W.1.



Staff and Labour Matters

A survey of recent events in the railway industrial field

Since we last went to press there have been various developments in regard to staff and labour matters concerning the staff of the British Transport Commission.

Redundancy in Railway Workshops

The British Transport Commission's plan to reorganise railway workshops was discussed on June 15 by representatives of the employees' side of the Railway Shopmen's National Council with the Chairman, Deputy Chairman and other officers of the British Transport Commission.

The representatives of the employees' side urged that the production of new diesel locomotives and other rolling-stock, together with other work, should be carried out in railway workshops and not by private contractors. They suggested that the intake of new apprentices should be reduced to a minimum and that reductions in the labour force should be effected by normal wastage instead of dismissals.

The Chairman of the Commission undertook to consider the views expressed by the employees' side of the Railway Shopmen's National Council.

On June 25 the British Transport Commission gave its reply at a meeting of the Railway Staff Joint Council to the claim of the N.U.R. for substantially increased rates of pay of railway salaried and conciliation staff. The union's claim was based on three main planks: cost of living, comparison with outside industries, and the economies made by the Commission through modernisation and other measures.

The Commission's representatives did not accept that these grounds justified any improvement in rates of pay. They argued that it was inappropriate to raise comparisons with outside industry at a time when an independent committee of inquiry, by general agreement of all parties to the machinery of negotiation, was undertaking a review of railway pay with particular reference to comparisons with other nationalised industries, public services, and appropriate private undertakings. The N.U.R. representatives were reminded that the terms of reference to the independent pay inquiry had been accepted by them subject to their reserving the right to submit a claim based on cost of living, during the process of the inquiry, should such a course prove necessary. As the agreement was reached in regard to the independent inquiry there had in fact been a slight fall in the Index of Retail Prices. The railways have been running at a loss since 1955 and, despite economies made, working expenses exceeded gross receipts by over £48 million in 1958. The Commission's representatives urged the N.U.R. to reconsider its claim in the light of the views expressed, and bearing in mind the railways' efforts to retain traffic in the face of keen competition at a time when many of their staple traffics were depressed because of slackness in trade.

No Support from Sister Unions

The pressure on the N.U.R. to submit a claim for improved rates of pay at this point in time has come from the union's branches and district councils, but it is significant that neither the T.S.S.A. nor the A.S.L.E. & F. has thought fit "make similar demands, feeling it more appropriate to await the outcome of the pay review. The N.U.R. executive has no doubt been influenced by the fact that the pay review is bound to take time and that union members in consequence are becoming restless. A

review of railway pay in relation to other nationalised industries, public services, and private undertakings is no small assignment and detailed inquiries require to be made, both inside and outside the railways. These, inevitably must take some time. When finalised, the report should demonstrate how the staff of British Railways stand in relation to their colleagues in other nationalised industries and so far as comparable, employment in the private sector of industry is concerned.

N.U.R. Annual Conference

At the N.U.R. annual conference which commenced at Blackpool on July 5, both the President and General Secretary of the N.U.R. stated that they believed that the conclusions which would be reached by the pay review committee would confirm the opinion which they have all along held, and which the Railway Staff National Tribunal supported, that railwaymen are underpaid in comparison with workers in other nationalised and important industries. Delegates to the conference were told that for various reasons the review was slow in getting under way but the committee was now hard at work with a view to reaching finality as early as possible.

N.U.R. Wage Claim

It is understood that the N.U.R. has now decided to refer its claim for an increase in rates of pay for railway salaried and conciliation grades to the next stage of the railway negotiating machinery, viz., the Railway Staff National Council.

London Transport Pay Claim

A parallel claim for a substantial increase in pay for London Transport rail staff was presented on June 30 to the London Transport Executive.

Railway Workshops

The question of the Transport Commission's workshop policy was also referred to by the General Secretary of the N.U.R. in his report to the annual conference of the union. He stated that, after giving serious consideration to the Commission's statement on workshop policy, the union's view was that greater use should be made of railway workshops and not so much work placed out to private contract. While steps had been taken by the recently-concluded redundancy agreement to safeguard the position of the union's members, it did not represent the progress which the union desired for its members arising from the introduction of modern methods in the industry.

Mr. Greene went on to say that the great difficulties facing railwaymen resulted from the financial position of the Commission which with each year brought about added amounts to the central charges. The country could not go on expecting railwaymen to subsidise the transport of the country and it was in the light of these circumstances that some urgent assistance was necessary so that the union's members might receive some benefit from the steps which have been taken to modernise the industry. The view was expressed that, as the Commission was not likely to strike an even balance in its accounts by 1962, some other assistance would have to be given to the industry and it might well be that this assistance would have to come via Government policy. It was essential, therefore, that at the next election, a Government was elected which believed that the transport industry should be an essential service to the nation and not governed by private motives.

Pullman Operation

The conference decided to propose that new fast Pullman luxury expresses should be operated entirely by British Railways staff and not by Pullman Car Company employees. The delegates instructed their executive committee to work for the abolition of Pullman car services and their assimilation into the hotels and catering service of British Transport.

During the normal business of the conference delegates passed a resolution expressing serious alarm at the policy of the Commission in actively pursuing the present drive for the curtailment of services by the closure of depots and stations, branch lines and workshops. The resolution stated that this was the negation of the whole conception of a nationalised, co-ordinated transport industry. It added: "We have no confidence in an organisation which concurrently pursues a policy of expansion by the investment of millions of pounds in the modernisation scheme and yet simultaneously plans for the closure of a large part of its business and its total abandonment." It was urged that a future Labour Government should give priority to an examination of the present financial arrangements and the union's national executive was instructed to continue vigorous efforts towards the implementation of Labour's transport policy based on co-operation and integration.

Turning to more political issues, the union's conference backed the Labour Party's policy on the H-bomb with a vote of 51 for and 25 against.

Parliamentary Notes

New Overhead Railway System

Lord Hawke in the House of Lords on July 1, drew attention to the claim by engineers of the Southern Rhodesian Department of Engineering & Construction that they had invented a new overhead railway and he asked whether the Government was arranging for testing the system in Britain.

Earl Bathurst, Lord in Waiting, replied that the Minister of Transport & Civil Aviation was considering the information at present available.

Lord Merrivale pointed out that a Scottish consulting engineer had recently designed an efficient overhead railway. This had been taken up by a French firm, in conjunction with the French Government, and a test line was being built at Chateauneuf-sur-Loire. A representative of the British Government should inspect it.

Closing of Ashford Works

Mr. W. F. Deedes (Ashford—C.) referred on June 29 to the anxiety about the future of the railway works at Ashford. He had heard that the date of the run-down of the works was now 1960. That was far from being offset by railway electrification work. Alternative employment should be arranged now.

Mr. John Rodgers, Parliamentary Secretary to the Board of Trade, said that redundancy has threatened only the locomotive works, employing about 1,300 people, and scheduled for closing at the end of 1960. This date was now under review. The Commission would try to offer alternative employment. There were plans for new electric train repair and inspection sheds in Ashford.

"B.R. Doing a Good Job in Scotland"

The Financial Secretary to the Treasury, Mr. F. J. Erroll, in a debate on industry in Scotland on July 2, reminded the House of Commons how British Railways were improving goods services from and to

Scotland. He mentioned the London-Glasgow "Condor" container train service and the extension of the "assured arrival" service to Newcastle and Gateshead from Edinburgh and Glasgow, the export express service between Glasgow and Liverpool Docks giving an arrival the following morning, and the "Blue Spot Fish Special" between Aberdeen and London.

Mumbles Railway

On the Order for the Second Reading of the South Wales Transport Bill on July 10, Mr. Raymond Gower (Barry—C.) moved rejection. He said that this, the oldest passenger-carrying railway in the world, had proved itself a very safe method of transport. Its disappearance would intensify road traffic.

Mr. Richard Nugent, Joint Parliamentary Secretary to the Ministry of Transport & Civil Aviation, said that the management of a concern must themselves assess whether they thought they would make a profit or a loss. This test of profitable operation would usually ensure that the resources of the country were being used in the national interest.

The Bill was given a Second Reading without a division.

Luncheon to Mr. Donald Gordon

Mr. Donald Gordon, Chairman & President of Canadian National Railways, was the guest of honour of the Canadian Chamber of Commerce in Great Britain at a luncheon at the Dorchester Hotel, London, W.I., on July 28. Mr. J. S. Rogerson, President of the Club, was in the chair.

Mr. Gordon, replying to the toast of the guest of honour, stressed that any State-owned railway corporation must operate under the strict discipline of the market place. The organisation and business principles of Canadian National Railways, he pointed out, were modelled on those of private enterprise.

"It has its own board of directors, with all the usual powers of other corporate directors," he added, "and control of its administration is vested in the hands of a semi-autonomous group of professional managers, and not in a department of Government. To ensure the efficiency of its day-to-day operations the yardstick of success must be found in its profit and loss account, and, consequently, short-term results must not be confused with long-term objectives."

Mr. Gordon stated that if a publicly-owned railway was required by the Government to provide additional services which could not be run at a profit, it must receive adequate compensation. Otherwise it would run into a larger and larger deficit, and this would have a crippling effect on the morale and efficiency of its staff.

There were two main differences between British Railways and the nationalised C.N.R. First, Canadian National Railways operated in direct competition with the privately-owned Canadian Pacific Railway. Secondly, Canadian railways carried a far higher proportion of goods than passenger traffic, especially from the basic resource industries, and this form of revenue tended to be very sensitive to fluctuations in economic activity.

There had been considerable under-investment in both the Canadian and British railways, he went on. In Canada, however, the capital investment undertaken by his company was beginning to bear fruit and the programme of conversion to diesel traction was expected to reach completion within about a year.

Those present included Sir John Benstead, Deputy Chairman of the B.T.C., Sir John Elliot, Chairman, Thos. Cook & Son Ltd., Mr. J. C. Kenkel and Mr. Harry Arkle, European General Managers respectively of the Canadian National and Canadian

Pacific Railways, and senior officers of the B.T.C. and British Railways.

Mr. Gordon has had discussions with Sir Brian Robertson, Chairman of the B.T.C., and has visited various installations and new works on British Railways.

B.T.C. Passenger Charges Scheme Authorised

Powers granted to raise British Railways ordinary fares and season ticket rates and some L.T.E. fares

By its order dated July 8 the Transport Tribunal has accorded the British Transport Commission powers to increase British Railways fares from 2d. up to 3d. a mile second class and from 3d. up to 4½d. first class. The original scheme had been rejected "as lodged" in May, because the Tribunal did not agree with the proposed increases in season ticket rates in the London area. The new rates, now authorised, are about half-way between existing rates and those proposed in May.

London Transport 3d., 4d. and 5d. ordinary fares for one, one and a half, and two miles, respectively, are not affected by the Tribunal award, but powers have been given to increase higher fares by 1d. for fares from 6d. to 1s. 10d. and by more for longer journeys.

The new scheme comes into effect on August 1, but the Commission has announced that action will be postponed until the end of the summer holiday period except for certain limited increases in the London area. The new rates are maximum ones and are not necessarily what will be asked by the Commission.

Season Tickets in London Area

Under the new powers rail season tickets in the London area and outside may be increased up to maxima varying according to distances. London area monthly season tickets, for instance, may go up by 4 per cent for two miles, 8 per cent for seven miles, 12½ per cent for 20 miles, and 18½ per cent at 30 miles, with higher percentage increases for longer distances.

As to early-morning fares in the London area and outside, the Tribunal has decided that these should be discontinued after the end of 1960. Meanwhile the present early-morning rates are to be increased.

Examples of the new permissible maximum monthly rates for season tickets in the London area are:

Miles	Present charge		Amended charge	
	£	s.	£	s.
1	1	0	1	0
3	1	8	1	9
5	1	16	1	18
7	2	4	2	7
10	2	15	3	0
12	3	1	3	7

In the London area early-morning return fares for journeys between six and 13 miles could be increased by 4d. The early-morning single on London Transport road services for journeys from six to 13 miles could be increased by 3d. The present rate is 9d.

L.T.E. Fares Increased

On August 23 the London Transport Executive is to increase the 6d. ordinary fare to 7d. on road and rail services as authorised by the Tribunal. This is the only increase in fares which is to be made at this time under the Tribunal award.

With the raising of the fare to 7d. the average cost of London Transport fares will be 151 per cent above pre-war, compared with an increase of 173 per cent in the average cost of goods and services. The 6d. fare has remained unchanged since 1954.

The new maximum rates for Green Line buses allow a penny to be added to all fares up to 1s. 11d. The 2s. 1d. and 2s. 3d. fares may be raised by 2d., the 2s. 5d. and 2s. 7d. fares by 3d., and so on. The fares of 30 miles could be increased from 6s. 10d. to 8s. 5d.

British Railways Continental boat train fares may be raised. A second class fare from London to Folkestone could go up from 16s. 4d. to 25s. 4d., and the first class fare from 33s. to 38s.

Inaugural Run of Accelerated "Bristolian"



The "Bristolian" before departure from Paddington on June 15 on the inaugural run to Bristol via Bath. The locomotive is "Warship" class No. D.805, "Benbow".

British Electric Traction Company Limited

Recurring wage demands criticised : Further progress foreshadowed : Mr. H. C. Drayton's review

THE sixty-third annual general meeting of The British Electric Traction Company Limited was held on July 23rd, in London. Mr. H. C. Drayton, Chairman of the company, in the course of his address said :

Accounts

The Group gross profit for the year at £4,615,000 shows an increase of £928,000 over the previous year. After deducting taxation the net profit is £2,658,000 against £1,883,000 last year, an increase of £775,000 on the year. The proportion attributable to your company is £2,286,000 as against £1,619,000 last year, or an increase of £667,000. Your Directors are recommending the payment of a dividend of 35 per cent on the Deferred Stocks as against 25 per cent last year.

United Kingdom Bus Companies

The results of our bus companies in this country for the 12 months ended in March were better than those for the previous year, but these improved results are only comparative as, for the year to March, 1958, we had a serious setback as a result of the bus strike in that year. However, in October last, we had to meet a further wage increase of 7s. a week on the basic rates, and this, I would point out, followed an increase of 11s. only 15 months before. Each year since 1955 we have had a small decrease in the number of miles run and the passengers carried by our associated companies; in that period we have had to put in economies and trim a number of our routes which has not been in the interests either of our employees or of the public.

A short while ago, the trade unions presented yet further claims to the provincial bus companies, including a heavy increase for the wages of drivers operating one-man vehicles and for the reduction of normal working hours without loss of pay. I cannot for the life of me see why a one-man-operated vehicle should be entitled to the increase asked for, as any extra responsibility or work which may fall upon him does not justify such a claim. After all, there has got to be some relation between wages paid and the amount of work given in exchange. I have told you before that approximately 40 per cent of our route mileage is run at a loss, and if these fresh demands are granted, even in part, we should find it increasingly difficult to keep the present level of our services, and in fact they would have to be reduced and consequently the number of men in employment would also have to be reduced. This demand for increased payments for the Manning of one-man buses would have a serious effect upon the maintenance of a number of our unremunerative rural services.

If only we could have a holiday for two or three years from any wage increase it would allow both our executives and the whole of our management to give their undivided time and attention to managing the business, examining where economies could be made and efficiency increased, and the benefit would be twofold : (1) to the public who are served, and (2) to the number of men whom we could keep in employment.

After all, the trade union leaders only have one duty to perform—that is to get higher remuneration for the men they represent. Our executives and general managers,

on the other hand, have a duty to the men to see that the wages they agree can be paid and that there are earnings—out of which they can pay these wages.

In the last budget the Chancellor did grant us a reduction in the cost of the annual road fund licences, and that was of value, as it amounted to a two-thirds reduction on the former rates. However, unfortunately, in the previous budget we had had the profits tax on statutory undertakings raised from 3 per cent to 10 per cent, so that one balanced out the other, and we were like Alice who, after running, found she had only managed to keep herself in the same place.

Overseas Interests

For the year 1958, our Canadian subsidiary, Canadian Motorways, had a better year. The previous year we lost money, but during 1958 measures of reorganisation were introduced and are still continuing, with encouraging results. I am hopeful that when I meet you next year, I shall be able to report that we are on a profit-earning basis.

In Jamaica our profits showed a considerable contraction in 1958 as a result of rising costs of operation and of a further wage increase award. I must once more protest, not necessarily at the wage award, but that it should operate retrospectively from January 1, 1958.

Since the company was formed just over five years ago, costs of operation have increased by more than 30 per cent and wages costs by more than 60 per cent, yet we have managed to keep fares stable throughout that period. However, costs have reached such a height that it has made it imperative for us to apply for an increase in fares, but, unfortunately, the Jamaican authorities take their time in increasing such fares, and no power on earth can make any fare increase retrospective. The company's application was lodged in November, 1958, and has only just come up for hearing by the appropriate tribunal. We naturally hope that we shall be given permission to make the reasonable increase in fares for which we are asking, but retrospective dating of wage increases and the time taken to consider fare increases are likely to have an effect upon the attitude investors take towards Jamaica in the future.

For the year 1958 our African interests, which are managed by our friends United Transport Company of Chepstow, maintained their position. African Transport Company paid the same dividend as in the previous year. The passenger transport companies reported increases in traffic and revenue. Towards the end of the year the Group acquired Uganda Transport Company, a major long-distance operator in western Uganda.

Rhodesia United Transport, which has shown remarkable growth since its formation, now expects to enter into a period of consolidation. We received a dividend at a higher rate on our increased investment than we had received on our smaller holding in the previous year, and we expect these good results to be at least maintained. The building of the Kariba Dam has been speeded up with the result that the benefits received from the road transport contract which is held by one of the companies in the group will be concentrated into a shorter period than had originally been expected. On the other hand, there has been a notable increase in

the division which provides vehicles and transport management services to industrial firms under period contracts.

Other Interests

Since the close of our year on March 31 last, the preliminary figures of Associated-Rediffusion to April 30, 1959, have been published. The results for the year ending April 30, 1958, and the preliminary results for April, 1959, are most satisfactory. As you are aware, it has not always been easy-going in this business, and we are now beginning to reap the reward for the risks we took. Those risks should not be overlooked or minimised now that we are in smooth water.

Rediffusion Limited, in which we have a considerable holding, again had a successful year, and the profits of the company showed a most satisfactory increase.

The profit of Advance Laundries for 1958 showed a considerable further improvement, although the company did not pay an increased dividend, as they had heavy demands for cash for the expansion and modernisation taking place within the group.

Among our smaller undertakings, Eddison Plant has had a successful year. The company's original business was the hire of road rollers, but in recent years they have built up a division for the hire of contractors' plant which has been successful.

The Future

The consolidated Group profit for the year amounts to £4,615,000. Some years ago, I thought it right and proper that shareholders should be possessed of the information as to where their income arose. To give you percentages based on that figure of £4,615,000 would be unsatisfactory as it only includes the interim dividend from our 50 per cent holding in Associated-Rediffusion. Therefore, I want you to do a little sum. On to that figure you must add £700,000, being the final dividend recently declared by Associated-Rediffusion, which comes direct to us; £210,000 for what we might normally expect to get from our American interests, that is Canada and Jamaica (and here let me warn you it is an estimate); and £100,000 for, shall we say, a modest rise in the income from our general investments. Also, we think we can look for an increase from our laundries of about £140,000 of income.

That brings us to a figure of £5,765,000, and here I must be quite categorical and say you must take these figures as estimates, as I am trying to build up a figure as a base to give you a percentage of where our profits are likely to arise. Taking that figure as, shall we say, a hope rather than an actual figure, the percentages work out as follows: 32 per cent from bus businesses in England; 9 per cent from Rediffusion; 20 per cent from Associated-Rediffusion; 10 per cent from laundries; 5 per cent from our transport interests in Canada and Jamaica; 2 per cent from our transport interests in Africa; 2 per cent from Eddison Plant; and 20 per cent from our general investments.

After having been so courageous or reckless—I do not quite know which term should be used in giving you these figures—I am sure you will not expect me to say anything more about what I think the current year's results will be.

The report and accounts were adopted.

Contracts and Tenders

Type "3" diesel-hydraulic locomotives for British Railways

An order for 45 diesel-hydraulic main-line locomotives of 1,700 h.p., the first diesel-hydraulic locomotives of the power range 1,500/1,750 h.p. (Type "3") to be ordered for British Railways, has been placed by the British Transport Commission with Beyer Peacock (Hymek) Limited. The locomotives are for use in the Western Region. They will have Maybach diesel engines and Mekydro transmission; and a BB wheel arrangement. Also, 12 diesel-electric locomotives of 1,550 h.p., for use in the Southern Region on the London-Hastings line, have been ordered from the Birmingham Railway Carriage & Wagon Co. Ltd. They will have Sulzer engines and Crompton Parkinson electrical equipment; and a BB wheel arrangement. The orders are included in a number of contracts announced by the British Transport Commission in connection with the modernisation of British Railways. Details of the other orders are as follow:

The Drewry Car Co. Ltd.: 32 power equipments for 200 h.p. diesel-mechanical shunting locomotives to be built at Swindon.

British United Traction Limited: 18 power equipments, 230 h.p., for diesel twin-engined multiple-unit vehicles with driving position, 16 power equipments, 230 h.p., for diesel twin-engined multiple-unit vehicles, non-driving, and 17 control equipments for diesel multiple-unit trailer vehicles. These power and control equipments are for vehicles to be built at Swindon for Hull-Liverpool inter-city services.

Fuller Electric Limited: 134 booster transformers for use with a.c. electrification to limit interference in telecommunication and signalling circuits.

Foster Transformers Limited: 150 booster transformers.

W. C. Youngman Limited: 500 S.W. 1-ton containers.

Ruston & Hornsby Limited: one 88-h.p. diesel-mechanical shunting locomotive for the North Eastern Region.

A British group of companies, British Insulated Callender's Construction Co. Ltd., the English Electric Co. Ltd., and Metropolitan Vickers Electrical Co. Ltd., has been awarded a contract to supply electric locomotives and overhead line equipment to Poland by an agreement signed recently in Warsaw. The contract, of which the total value is some £2,750,000, covers the supply of 20 electric locomotives and overhead line equipment, and a licence to manufacture the same type of locomotive in Poland. The contract, which is with the Polish Government agency Elektrom, is based on long-term credits. Delivery of the locomotives will begin in February, 1961, and will be completed 12 months later. The overhead electric equipment will begin to be delivered very soon. The Metropolitan Vickers share of the order will be executed by the new Traction Division of Associated Electrical Industries.

South African Railways has placed the following contracts:

Dorman Long (Africa) Limited: 2,000 short cattle wagons, value £1,800,000, and 500 bogie fruit wagons, value £582,000.

Williams & Dowse Limited: 1,000 fruit wagons and 650 goods guards vans at a total cost of some £2,300,000.

Gregg Car Company representing Wright Boag & Head Wrightson Limited: 2,000 short drop-side steel wagons at a cost of £1,600,000.

The Canadian National Railways has placed an order for 200 50-ton heated covered wagons with Eastern Car Division of Dominion Steel & Coal Corporation Limited. The heated wagons will supplement the C.N.R. fleet of heated refrigerator wagons in the movement of perishables and other goods which must be kept from freezing. The new vehicles will have a capacity nearly double that of standard refrigerator wagons.

The London Transport Executive has placed a contract with James Robb & Son Ltd., for repainting and minor repairs to 21 bridges on the Metropolitan Line between Finchley Road and Amersham and three bridges on the High Barnet branch of the Northern Line. The value of the contract is some £11,000 and the work should be completed in six months.

Heenan & Froude Limited, Worcester, has received a contract from the Finnish State Railways for one 2,000 b.h.p. Heenan Dynamatic dynamometer.

British Railways, Southern Region, has placed the following contracts:—

The Limmer & Trinidad Lake Asphalt Co. Ltd., roof cladding, Wimbledon Park Repair Depot.

Taylor Woodrow Construction Limited: carriage cleaning and inspection shed, new staff accommodation, Selhurst.

E. C. MacDermott & Company: new concrete roadway, Aldershot.

The Cleveland Bridge & Engineering Co. Ltd.: reconstruction of Eccleston Bridge, Victoria.

John Mowlem & Co. Ltd.: protection of piers and abutments, Richmond River Bridge.

A. C. W. Hobman & Co. Ltd.: resurfacing and surface dressing of roads, footpaths, and platforms, Brighton district.

Matthew T. Shaw & Co. Ltd.: fabricated steelwork for new platform roofing and buildings, Chatham Station.

Richard Costain Limited: garage and oil fuelling installation for diesel-electric locomotives, Faversham.

R. Corben & Son Ltd.: new enquiry office, Portsmouth & Southsea Station.

British Railways, Scottish Region, has placed the following contracts:—

James Miller & Partners Ltd.: diesel oil storage and maintenance facilities, Haymarket motive power depot, Edinburgh.

Herbert Morris Limited: provision of conveyors, Motherwell long rail welding installation.

Aerozem (Scotland) Limited: maintenance work, Ralio seven-arch viaduct.

British Railways, Eastern Region, has placed the following contracts:—

Standard Telephones & Cables Limited: supply, installation, testing, and commissioning of complete train describing system, between Fenchurch Street and Shoeburyness.

Caffin & Co. Ltd.: reconstruction of superstructure of overbridge No. 10 between Upminster and Ockendon.

Tersons Limited: excavation, piling, foundations, and fabrication and erection of beams and columns and other works in connection with the construction of new Carriage Servicing Depot at East Ham.

B.K.S. Air Survey Limited: aerial survey of railway tracks, works, and

property together with adjacent lands between Copper Mill Junction and Cheshunt Junction.

Pitchers Limited: construction of new boiler house, carriage washing plant, lavatory flushing apron, filter tank and ancillary buildings, steel water tower and services, and conversion of existing repair shed to a store at Ilford Electric Train Depot.

British Railways, North Eastern Region, has placed the following contracts:—

William Richardson & Co. Ltd.: installation of a heating system and oil firing equipment at Hull Springhead Motive Power Depot, and installation of hot and cold water services and a ventilation plant in offices to be constructed at Middlesbrough for the Traffic Manager Tees-side.

Tarslang Limited: reconstruction and widening of the substructure of Bridge No. 290 at Fellgate, between Pelaw and Boldon Colliery.

Wright Anderson & Co. Ltd.: reconstruction of the superstructure of Bridge No. 290, referred to above.

The Special Register Information Service, Export Services Branch, Board of Trade, has received calls for tenders as follow:—

From India:

2 diesel shunting locomotives.

The issuing authority and address to which bids should be sent is the Controller of Purchase & Stores, Damodar Valley Corporation, Anderson House, Alipore, Calcutta. The tender No. is PC/176/58-59. Specifications and tender forms may be obtained from the office of the Controller of Purchase & Stores at a cost of Rs.10 a set. The closing date is August 12, 1959. The Board of Trade reference is ESB/15663/59.

From Panama:

Some 21 to 39 electric towing locomotives, 45 tons each with two towing cables controlled by level wind winches and with a maximum available tension of 35,000 lb. on each cable. The locomotives must be able to tow ships and negotiate inclines at 1, 2 and 3 m.p.h., and run light at 6 and 9 m.p.h. on level track.

3 electric cranes with 35 ft. long booms and a maximum lift capacity of 10 tons. The traction units are to be interchangeable with the above locomotive traction units.

The issuing authority is the Panama Canal Company, 21, West Street, New York 6, U.S.A. The tender No. is PC59-71. The address to which bids should be sent is the Engineering & Construction Director, Balboa Heights, Panama Canal Zone. The closing date is August 14, 1959. The Board of Trade reference is ESB/8343/59.

From Portuguese East Africa:

49 shafts for locomotive axles.

The issuing authority is the Ports, Railways & Transport Department, Lourenco Marques. The tender No. is 152/59. A provisional deposit of Esc.25,000 must be made by tenderers. The closing date is August 19, 1959. Local representation is essential. The Board of Trade reference is ESB/16348/59.

Further details regarding the above tenders, together with photo-copies of tender documents, can be obtained from the Branch (Lacoon House, Theobalds Road, W.C.1).

Notes and News

Antofagasta (Chili) & Bolivia Railway Co. Ltd.—A dividend of 2 per cent is to be paid on the 4 per cent perpetual debenture stock of the Antofagasta (Chili) & Bolivia Railway Co. Ltd. The dividend on the 5 per cent preference stock, due on July 1, was not paid.

New Medical Centre at Crewe Works.—Work is in hand on a new surgery and medical centre at the west end of Crewe Works, London Midland Region. The new centre will include X-ray equipment. Some improvements are also being made to the Railway Accident Hospital, where the recruitment and periodic health and eyesight examinations are carried out.

Institute of Transport : Week-end Course at Oxford.—The Council of the Institute of Transport has arranged for a week-end course at Magdalen College, Oxford, from Friday, September 4, to Monday, September 7. Sir Reginald Wilson, Member, British Transport Commission, and immediate Past-President of the Institute of Transport, will preside, and the course will consist of lectures and discussions on the subject of "The pattern of future demand for public inland transport."

Improved Electric Mines Locomotives.—By using the Symes differential drive, the Hunslet Engine Co. Ltd. has produced a 40 h.p. electric mines locomotive which is claimed to be easy to control and does not require heavy starting currents. Two d.c. motors drive in opposite directions the input shafts of a differential gearbox. The differential cage drives the roadwheels only when the single control lever accelerates one motor and slows the other by field-strength variation. Advantages include reduced substation capacity for trolley operation; alternatively improved battery life.

Fifty Years of Royal Patronage of Railway Convalescent Homes.—The Board of the Railway Convalescent Homes recently passed

Sir John Elliot's Farewell to L.T.E.



Sir John Elliot, who recently retired from the chairmanship of the London Transport Executive, shaking hands with a motorman at Edgware Station, Northern Line

a resolution that a loyal message be sent to the Queen, as Patron in Chief in commemoration of 50 years of Royal Patronage. This was laid before the Queen, who sent the following reply to the President of the Railway Convalescent Homes, Mr. K. W. C. Grand: "Please convey to the Board of the Railway Convalescent Homes my sincere thanks for their loyal assurances. As Grand Patron of the Homes, I send my best wishes to all engaged in the management of them."

London Travel Committee Support for Victoria Line.—The London Travel Committee report on the Victoria Line was given to the Minister of Transport & Civil Aviation last week. It recommends the building of the Victoria Line, L.T.E., proposed tube between Victoria and Walthamstow as a useful addition to the transport facilities of London in any circumstances.

Withdrawal of Passenger Services from Wadsley Bridge, Oughton Bridge and Deepcar Stations.—British Railways, Eastern Region, has withdrawn the passenger train service from Wadsley Bridge, Oughton Bridge, and Deepcar, on the Sheffield-Penistone line. Facilities are retained at Wadsley Bridge and Deepcar for football specials, anglers' and other special excursion trains. Passengers are catered for by bus services. Parcels traffic is accepted at Wadsley Bridge and Deepcar goods depots for dispatch, or may be addressed to those two places to be called for. A parcels C. & D. service continues in the area served by the three stations.

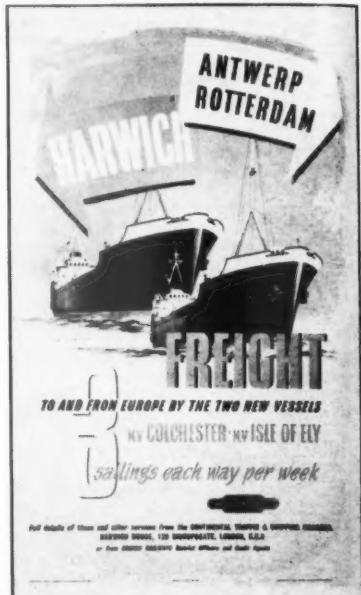
A.E.C. to Manufacture in South Africa.—Associated Commercial Vehicles Limited announces that its subsidiary company, A.E.C. Limited, has acquired a substantial interest in the South African public company, J. H. Plane Africa Limited of Johannesburg. A South African company is being registered to manufacture and market progressively the A.E.C. range of vehicles in the Union. Sir William Black, Chairman of A.E.C. Limited, and Mr. J. D. Slater, a Director of A.E.C. Limited, have accepted invitations to join the board of J. H. Plane Africa Limited. Dowson & Dobson Limited, which has represented A.E.C. in South Africa for the last 18 years, has transferred its distributorship to the new South African A.E.C. company as from July 1.

Mr. Stanley Adams and Mr. Charles Holt.—On July 23, Mr. B. H. Russell, Cunard Line, presided at a luncheon at the Dorchester Hotel, London, W.1, in honour of Mr. Stanley Adams on his retirement from the chairmanship of Thos. Cook & Son Ltd., and of Mr. Charles Holt on his appointment as Managing Director of that company. The toast of the guests of honour was proposed by Mr. Russell and seconded by Sir John Elliot, who has succeeded Mr. Stanley Adams as Chairman of Thos. Cook & Son, Ltd.; Mr. Adams and Mr. Holt responded.

Improvements at Kings Langley Station.—Prefabricated timber buildings are being erected to replace the present platform buildings at Kings Langley Station, British Railways, London Midland Region. The new accommodation on the down fast platform consists of a porters' room with a covered waiting area combined with a new covering to the subway steps. The island platform accommodation is a waiting shelter with covered waiting area and covering to the subway steps. Accommodation on the up slow platform consists of a waiting room, lavatories, and covering to subway steps. A new stationmaster's office is also being constructed adjoining the present booking

office and the whole of the entrance buildings at road level are being re-decorated.

Eastern Region Continental Freight Poster.—With the recent introduction of two new vessels for the freight services between Harwich and the Continent, British Railways, Eastern Region, has produced the poster shown in the accompanying illustration.



Poster produced by the Public Relations and Publicity Officer, British Railways, Eastern Region, featuring freight services to the Continent via Harwich and Antwerp and Rotterdam

This publicises the three sailings each way, every week, between Harwich and Antwerp, and Harwich and Rotterdam, by the motor vessels *Colchester* and *Isle of Ely*. The poster is printed in six colours by Waterlow & Sons Ltd. from artwork by D. K. Design Limited.

Brunel Centenary Exhibition.—To mark the centenary of the death of Isambard Kingdom Brunel, British Railways, Western Region, held a Brunel Centenary Exhibition in the headquarters offices at Paddington Station from July 16 to August 1. The exhibition featured many of Brunel's personal possessions including signed drawings, letters, notebooks, and instruments. Many items connected with the Brunel period of the Great Western Railway, of which he was Engineer from its origins in 1833 until his death, also were on view, and many other exhibits of historic interest.

The Railway Queen at Battersea Festival Gardens.—On July 20, at 3 p.m., Miss Gloria Cripps, the Railway Queen of 1959, received the Freedom of Battersea Festival Gardens & Fun Fair from the Garden's General Manager, Brigadier E. W. Pert, M.C. Miss Cripps wore the International Railway Queen chain of office, the links of which have been donated by 14 countries including Soviet Russia, Israel, and the United States. She also wore the official British Railways gold collar, presented by Sir Brian Robertson last September. Accompanying the Railway Queen was Mr. W. H. Ferran, General Secretary of the Railway Queen Council. After her visit to Battersea, Miss Cripps visited the T.S.S.A. and N.U.R. headquarters and then met the Railway M.P.s for tea at the House of Commons.

Crewe Works Builds Its First Main-Line Diesel-Electric Locomotive.—The first Type "2" diesel-electric locomotive to be built in Crewe Works, British Railways, London Midland Region, was completed recently. One of 54 for the Eastern Region, with Sulzer 6LDA28 1,160-b.h.p. engines and B.T.H. electrical equipment, it is similar to the Type "2" Bo-Bo locomotives currently under construction at Derby Works and of which a description was given in our July 25, 1958, issue. The Crewe-built series is being numbered D5030-D5065 and D5076-D5093. Construction is to the requirements of the British Transport Commission under the general direction of Messrs. J. F. Harrison and S. B. Warder, Chief Mechanical Engineer and Chief Electrical Engineer respectively of British Railways Central Staff, B.T.C. The detailed design and supervision of construction is the responsibility of Mr. A. E. Robson, Chief Mechanical & Electrical Engineer, Derby, London Midland Region.

General Electric Co. Ltd. Results.—During the year to March 31, 1959, group turnover of the General Electric Co. Ltd. rose by over £3,000,000 to a record £108,000,000. Exports by the group and associated companies increased to £23,771,000 (£22,989,000) despite competition which forced down profit margins. Group profit, after substantially lower tax, was £1,983,049 (£1,605,480). A final dividend of 7 per cent. is recommended making a total of 10 per cent. as for the previous year. Sir Leslie Gamage, the Chairman, reports that the abnormally heavy research and development outlay of the previous year has begun righting itself as development gives way to production, and he considers the outlook to be more promising than a year ago.

New Laboratories at Fulmer Research Institute.—An open day at the Fulmer Research Institute, Stoke Poges, Buckinghamshire, on July 16, marked the completion of two new buildings, the physics laboratory and the workshops. These have been erected next to the existing engineering and metallurgy laboratories, so that all four buildings run side by side from north to south. It is intended that these single-storey buildings will eventually be linked together by a two-storey construction running from east to west, forming an integral unit. The services, heating and accommodation have been planned on the requirements of this ultimate scheme. The Fulmer Research Institute, founded in 1947, provides research facilities into problems associated with physical metallurgy; foundry metal-working and ceramics; physical chemistry; thermodynamics and extraction metallurgy; physics, including electron-microscopy; corrosion and electrodeposition, and chemical and spectrographic analysis.

Display of E.A.R. & H. Films.—Sir Arthur Kirby, Commissioner for East Africa, introduced a display at the British Council Theatre, Hanover Street, W.I, last week, of three 16 mm. films shot in East Africa by the East African Railways & Harbours Film Unit and produced in the U.K. by Gateway Film Productions Limited. "Copper" describes the copper mines at Kilembe, in Western Uganda. The development of the deposits there and the resulting rail traffic to a considerable extent made practicable the building of the Western Uganda Extension line. The film shows bulk handling of mineral products conveyed by rail. "Casew Nut Line" outlines the construction of the 24-mile railway in the Southern Province of Tanganyika, in four months, to facilitate movement of this year's cashew nut crop. The line, from Chilungula to Masasi, was described in our October 31, 1958, issue. "Coffee" describes the rapid



D5030, first Type "2" diesel-electric main-line locomotive built at Crewe Works, British Railways, London Midland Region

growth in East Africa of the coffee industry. Copies of these and of other films produced by E.A.R. & H. are available on free loan from the East African Office, Grand Buildings, Trafalgar Square, W.C.2, or from F. C. Pritchard, Wood & Partners Limited, 197, Knightsbridge, S.W.7.

Sir Brian Robertson's Visit to N.E. Region.—On a recent visit to the North Eastern Region of British Railways and to Hull Docks, Sir Brian Robertson, Chairman of the British Transport Commission, inspected various installations in the York and Hull areas. The tour included visits to the new automatic telephone exchange at Regional headquarters at York, the new centralised Traffic Accounts Office, Neptune Street, Hull and the Hull English Street Freight Depot where modernisation work is now in progress. Sir Brian Robertson took the opportunity of meeting Regional railway officers and representatives of the staff. The accompanying illustration shows Mr. P. W. Hanstock, Assistant to Signal Engineer (Telecommunications), N. E. Region, pointing out a feature of the automatic telephone exchange, watched by (left

to right), Mr. A. F. Wigram, Signal Engineer; Sir Brian Robertson; Mr. T. H. Summerson, Chairman, N.E. Area Board, B.T.C.; Mr. H. A. Short, General Manager, and Mr. F. C. Margetts, Assistant General Manager (Traffic), N.E. Region.

New Ship Launched for Associated Humber Lines Limited.—The last of the six new ships, built on the Clyde for Associated Humber Lines Limited, was launched on July 8. Built at the Pointhouse Shipyard of A. & J. Inglis Limited, Glasgow, the new vessel was launched and named *York* by Mrs. H. A. Short, wife of Mr. H. A. Short, Chairman of Associated Humber Lines Limited and General Manager of the North Eastern Region of British Railways. The new vessel is expected to be delivered and put into service in September, and this will complete the modernisation of the fleet of Associated Humber Lines Limited. The mv. *York* is a sister ship of the *Wakefield* and the *Leeds* both now in service. The *York* has been built to the design prepared by the British Transport Commission consultants, Burness, Corlett & Partners in



Sir Brian Robertson with Mr. T. H. Summerson and Mr. H. A. Short inspecting the automatic telephone exchange at York

conjunction with the Technical Officers of Associated Humber Lines Limited to Lloyds requirements for a Class "A.1" ship strengthened for navigation in ice. It is a single screw cargo motor ship fitted with a Ruston & Hornsby Limited engine and will have a service speed of 12½ knots.

Naming Ceremony for First "Peak" Class Diesel-Electric Locomotive.—The first of the new "Peak" class (Type "4") diesel-electric locomotives on British Railways, London Midland Region was officially named *Scafell Pike* at a ceremony on July 13. Sir Fergus Graham, Lord Lieutenant of Cumberland unveiled the nameplate. Civic representatives present included the Mayor of Carlisle, Councillor W. J. Hunter, who is a railwayman. Amongst others who attended were Mr. W. E. Grainger, Acting Divisional Traffic Manager, Barrow, Mr. T. F. B. Simpson, Works Manager, Derby Locomotive Works (where the locomotive was built), and Mr. B. P. Blackburn, District Motive Power Superintendent, Carlisle, London Midland Region.

Electrical Engineers Exhibition, 1960.—The 9th Electrical Engineers Exhibition, sponsored by the Association of Supervising Electrical Engineers, will be held at Earls Court, London, from April 5-9, 1960. Provisional bookings, by last year's exhibitors for stand space at the 1960 show have been heavy. In addition 45 new exhibitors have applied. This is Britain's largest annual trade show. The exhibits include all types of electrical engineering equipment, accessories and raw materials. The feature of 1960 will be "Marine Electrics." Exhibits will include propulsion equipment, water-tight fittings, communications, radar, catering, heating, lighting, generating, pumping, and all ship electrical-equipment. Bookings for stand space will close early in September.

Silicone Rectifier Equipment for Electrolytic Production of Manganese.—A 2.6 MW. silicone rectifier equipment has been manufactured by Standard Telephones & Cables Limited, for installation at the Electrolytic Metals Corporation plant in South Africa for the electrolytic production of manganese. A single 3,150kVA. regulator controls the entire equipment, which is split into four transformer/rectifier sections, a.c. and d.c. isolators allow the removal of one section from service for maintenance purposes, whilst leaving the plant operating at 75 per cent full load. The four rectifier cubicles are paralleled on the d.c. output side, and supply the complete power requirement for the electrolytic process. The total output current is maintained to within 2 per cent of any required value between 15,000 and 20,000A. by a constant current control loop to the main input regulator; the required current setting is made by the plant operator at the control panel in the electrolytic plant area.

British Standard for Electrical Terminal Markings.—The British Standards Institution is issuing the new edition of B.S. 822: 1959, terminal markings for electrical machinery and apparatus, in a series of parts which will be designed to fit into a binder. Parts 1 and 2 were published in 1958, and it is expected that parts giving terminal markings for apparatus covered by new British Standards will become available when the specifications for the apparatus are published. A speedy revision of individual parts will be possible. Part 3 deals with terminal markings for power transformers; it gives the markings applicable to transformers complying with the recently issued revision of B.S. 171, power transformers. Part 4 provides the terminal markings for indicating and graphic-recording instruments designed for direct con-

nection in a circuit and for those intended for use in conjunction with instrument transformers. Six figures illustrate the markings applied to different instruments. An appendix provides recommendations on the preparation of diagrams of connections. Copies may be obtained from the British Standards Institution, 2, Park Street, London, W.1. Prices are Part 3, 6s. and Part 4, 4s.

on balance at 9s. 6d. and G. D. Peters remained at 20s. 7d. Charles Roberts 5s. shares eased from 12s. 3d. to 11s. 6. Beyer Peacock 5s. shares have continued to change hands around 7s. 6d.

Elsewhere, Pressed Steel 5s. shares were an active feature and have moved up from 27s. 3d. to 29s. 6d. Dowty 10s. shares eased from 41s. 9d. to 40s. 9d. Ransomes & Marles 5s. shares at 21s. 3d. were 7d. easier on balance. Electrical equipment and kindred shares were mostly lower than at the beginning of June. Associated Electrical have come back from 59s. to 55s. and English Electric from 42s. 9d. to 41s.; but G.E.C., which were helped by the results, rose from 33s. to 36s. 3d. Reflecting the rise in steel shares, United Steel were 37s. 3d. compared with 32s.

Railway Stock Market

Stock markets have been unusually active for this time of year when holiday influences normally curtail the volume of business. At one time the widespread talk of a general election in October made for caution, but the reaction in share values has since given way to an upward trend. This is regarded as reflecting continued confidence in the City in prospects of a Conservative victory in the next general election. Steel shares in particular have attracted attention because such a victory would kill the threat of nationalisation. The shares of locomotive builders and engineers, though showing somewhat mixed movements have also mostly moved higher, and record good gains compared with early June, when these notes last appeared before the recent printing dispute.

Over the same period, movements in foreign rail stocks were mostly small, but there has been a revival of speculative interest in Antofagasta stocks though based on their long-term possibilities more than any expectations of any fresh development of importance in the railway's affairs in the near future. At the time of going to press, Antofagasta ordinary stock has risen to 14, against 11½ at the beginning of June, and the preference stock also improved from 21 to 24.

On the other hand, United of Havana second income stock remained at 6, while over the same period, San Paulo Railway 3s. units eased from 1s. 9d. to 1s. 6d. On the other hand, Mexican Central "A" bearer debentures strengthened from 59½ to 60½.

Canadian Pacifics have been well maintained on balance. Compared with the beginning of June the preference stock has advanced from \$85½ to \$85 and the 4 per cent debentures from \$63 to \$64½. These sterling securities have been influenced by the rally in British Government stocks. White Pass shares were slightly lower on balance at \$14, against \$14½.

In other directions, Chilean Northern first debentures have remained around 62, and Costa Rica ordinary stock at 14 and the 6½ per cent second debentures at 86. Guayaquil & Quito assented bonds came back from 83½ to 80½xd, but International of Central America common shares moved up from \$20½ to \$24½ and the preferred stock from \$105 to \$120. Paraguay Central prior debentures remained at 11.

Brazil Railway bonds have improved fractionally since early June to 5½. West of India Portuguese capital stock gained a point at 106½ and the debentures were maintained at 91½. Nyasaland Railways shares have come back from 13s. 9d. to 11s. xd; the 3½ per cent debentures kept at 60½. Midland Railway of Western Australia ordinary stock continued to be quoted at 5½ and the second income stock at 10½.

A feature among shares of locomotive builders and engineers has been an advance in Birmingham Wagon from 22s. to 26s. 9d., but compared with the beginning of June, North British Locomotive have come back from 12s. 3d. to 10s. 9d. Gloucester Wagon 10s. shares were good with an advance in the same period from 16s. 10½d. to 18s. 3d. Wagon Repairs 5s. shares were little changed

OFFICIAL NOTICES

RAILWAY SURVEYOR/DRAUGHTSMAN required by Railway Siding Constructional Engineers.

Applicants must have trained in Railway Draughtsmanship, be able to survey existing trackwork, plot same to working scale and be fully conversant with theodolite and level practice.

Men (not over 30 years of age) with knowledge of Railway Standard Specification layouts preferred and only those who have specialised in the survey and design of railway trackwork in the United Kingdom need apply.

Conditions of employment include provision of car, all travelling and general expenses, five-day week on rota system, comprehensive superannuation scheme, etc. Assistance given with housing.

Write in first instance, stating age, experience and salary required to: Sidings Construction Department Manager, Thos. W. Ward Ltd., Albion Works, Sheffield 4.

SHOTBLASTING in-situ by the 'on-site' experts. Organic and Inorganic Coatings applied. Anything, anywhere at competitive rates. Darnall Shotblasting Co. Ltd., Doctor Lane, Sheffield, 9. Telephone 42896.

THE Proprietors of Patent No. 730303 for "Improvements in Train Wheel Unit" desire to secure commercial exploitation by Licence or otherwise in the United Kingdom. Replies to Haslington Lake & Company, 28, Southampton Buildings, Chancery Lane, London, W.C.2.

MOTIVE Power Mechanic, has (brief clerical) experience, also three years maintenance of road transport vehicles, 6½ years loco-erection shop (Steam & Diesel), 2 years fitting Westinghouse air brake components, 2½ years maintenance Diesel locos. Holds government certificate of competency for Boiler Attendants, also for driving Diesel and steam engines. Desires employment with railway organisation or builder of Diesel engines and/or locomotives (local or overseas). Available circa mid August. Please Reply. John O. Smith (E. 83088), c/o Bank of N.S.W. Clients Mail Office, 47, Berkeley Square, London, W.I.

EAST AFRICAN RAILWAYS AND HARBOURS ADMINISTRATION

VACANCIES exist for qualified graduates as Cadet Civil and Mechanical Engineers under agreement for training up to three years, with eligibility on completion for appointment on probation to the permanent and pensionable establishment as Assistant Engineers.

Total emoluments £880-£1,090 a year. Free passages. Generous leave. Rent free quarters provided.

Candidates for the Cadet Mechanical Engineering vacancy must be aged 21-27 and possess a University degree in Mechanical Engineering, preferably with twelve months practical experience in an engineering (preferably locomotive) works, or, have served an apprenticeship of at least three years in a recognised engineering (preferably locomotive) works and be a Graduate member of the Institute of Mechanical Engineers, or be exempted from Sections A and B of the Associate membership examination.

For the Cadet Civil Engineering vacancy candidates must be under 26 and possess a University degree in Civil Engineering. No practical experience is necessary.

Write Director of Recruitment, Colonial Office, S.W.1, giving full names, age, qualifications and experience, quoting BCD 445/019/D15.

W. G. BAGNALL LIMITED, manufacturers of Diesel Mechanical, Diesel Hydraulic and Diesel Electric Locomotives, require a Locomotive Sales Engineer. Commencing salary will be according to age and qualifications. Contributory superannuation and life insurance scheme. Applications should be addressed to the Sales & Contracts Manager, Castle Engine Works, Stafford.

